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Quality of Reciprocated Friendships of Students with Special Educational Needs in Mainstream Seventh Grade

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This study focuses on companionship, intimacy, and support of reciprocated friendships of students with autism spectrum disorders (ASD), students with motor and/or sensory disabilities, and typically developing students with their classmates at the start of mainstream secondary school. The study included 1379 typically developing students, 65 students with ASD, and 50 students with motor and/or sensory disabilities of 100 different classes in 56 schools. Sociometric techniques were used. No differences were found between companionship and support of the reciprocated friendships of the three groups. Students with ASD did report significantly less intimacy in their friendships than typically developing students did. The number of friends was not related to companionship or intimacy, but was positively associated with support of the students' reciprocated friendships. Furthermore, perceptions of shared friendship quality did not differ among students with ASD, students with motor and/or sensory disabilities, and their typically developing friends. Future research is needed to tap into the predictors and consequences of reciprocated friendships of students with special education needs in mainstream classes.

Over the past decades, the inclusion of students with special educational needs (SEN) in mainstream schools has become a global trend (Pijl, Meijer, & Hegarty, 1997). Within the literature, the term “students with special educational needs” generally refers to “students with various (combinations of) impairments and/or difficulties in participating in education”

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(Pijl, Frostad, & Flem, 2008, p. 389). In 2006 the United Nations (UN) agreed to the UN Convention on the Rights of Persons with a Disability, which guarantees the right of persons with disabilities to an inclusive education system at all levels and lifelong learning. Article 24 of this Convention commits the 153 states that signed the UN Convention so far to provide effective individualized support measures in environments “that maximize academic and social development, consistent with the goal of full inclusion” (United Nations, 2006). This definition shows that the social development of students with SEN is one of the main ideas of inclusive education. Also in the literature, authors described social participation of students with SEN as a key indicator of successful inclusion of these students (Symes & Humphrey, 2011). Hence, the degree to which students are actually socially participating in a school community is an important index for assessing the effectiveness of inclusive education.

Former research among typically developing students has indicated that social participation becomes increasingly important during adolescence (Rubin, Bukowski, & Parker, 2006). Compared with children, adolescents spent considerably more time with their peers, away from adult supervision (Brown & Klute, 2003). Additionally, early adolescence coincides with the transition from primary to secondary school. In recent years, this transition phase has been highlighted as an area of concern (Humphrey & Ainscow, 2006). This period is often marked by breaking up old friendships and forming new relationships (Hardy, Bukowski, & Sippola, 2002). Although the negative effects of this transition are temporary for many students, there are several groups of students for whom adjusting to secondary school proves to be a more difficult and prolonged process (Humphrey & Ainscow, 2006). Research shows that for instance students with ASD are especially at risk during this transition period. In general, they experience more difficulties with different aspects of social participation at the start of mainstream secondary school. For example, students with ASD are, on average, less accepted and more often rejected and bullied by their peers compared to typically developing students (Humphrey & Symes, 2010, 2011; Symes & Humphrey, 2010). Furthermore, in a study by Locke and colleagues (2010), the majority of students with ASD in mainstream secondary education were not recognized as being part of a friendship group as often as typically developing classmates.

Based on these results, we can conclude that the social situation of students with ASD at the start of mainstream secondary education is often not a desirable one. However, as has been argued by many scholars, comparisons with other clinical groups are necessary to understand if, and which, problems are unique to certain clinical groups (e.g., Chambers & Kay, 1992; Whitehouse, Durkin, Jaquet, & Ziatas, 2009). For example, there is much evidence that a considerable number of students with mild learning disabilities are less accepted and have fewer friends than typically developing students (Pijl, Skaalvik, & Skaalvik, 2010). Nonetheless, a direct comparison of the social situation of both clinical groups shows that students with ASD experienced, on average, a higher frequency of bullying and lower levels of social support from parents, classmates, and friends than students with dyslexia (Humphrey & Symes, 2010). A lot less is known about the social situation of students with motor and/or sensory disabilities at the start of mainstream secondary school (Pijl et al., 2010). Nonetheless, due to policy regulations, students with motor and/or sensory disabilities constitute, together with students with ASD, the majority of the students currently integrated in mainstream secondary education in Flanders (Belgium) (Scheys, 2011). Consequently, in this study, students with motor and/or sensory disabilities are chosen as a SEN control group.

Until now, most studies on social participation of students with SEN in inclusive education have focused on the presence or absence of certain types of relationships, for example the number of friendships. But the mere presence of a friend may not lead to positive adjustment outcomes (Hartup, 1996). From research among typically developing children, it is known that friendship quality contributes significantly and independently to developmental outcomes in samples of typically developing children (e.g., Parker & Asher, 1993; Malcolm, Jensen-Campbell, Rex-Lear, & Waldrup, 2006; Waldrup, Malcolm, & Jensen-Campbell, 2008). More important, friendship quality was found to be especially important for adolescents' adjustment when overall peer acceptance and number of friends are low (Waldrup et al., 2008). Furthermore, high-quality reciprocated friendships at school also act as a buffer against overt victimization, when peer acceptance is low (Malcolm et al., 2006). According to Malcolm and colleagues (2006), a high-quality friend can be defined as someone who provides companionship, intimacy, and support. Malcolm and colleagues reasoned that being accompanied by friends results in spending less time alone, making children less available for bullying experiences. However, there is extreme variability in children's ability to provide protection against victimization. Consequently, Malcolm and colleagues argued that high-quality friends, or friends who offer support (e.g., assistance, resources, encouragement) and affection (e.g., warmth and support) would be most important to provide protection against victimization. Consequently, in light of these previous findings, it can be assumed that having high-quality friends might be especially important for students with SEN, a group with lower overall peer acceptance and fewer friends at the start of mainstream secondary education compared to typically developing students.

So far, few studies have been conducted on friendship quality of students with SEN. Studies on friendship quality among students with ASD generally reported that students with high-functioning ASD (HFASD) had lower average levels of friendship quality compared to typically developing students (e.g., Bauminger & Kasari, 2000; Bauminger, Shulman, & Agam, 2004; Bauminger et al., 2008a; Chamberlain, Kasari, & Rotherham-Fuller, 2007; Kasari, Locke, Gulsrud, & Rotherham-Fuller, 2011; Solomon, Bauminger, & Rogers, 2011; Whitehouse et al., 2009). Most often, differences in friendship quality of students with HFASD and typically developing students were found in their levels of intimacy and help/support (e.g., Bauminger & Kasari, 2000). Some studies also reported lower companionship in friendships of students with HFASD than in friendships of typically developing students (e.g., Bauminger & Kasari, 2000; Bauminger et al., 2004; Chamberlain et al., 2007; Whitehouse et al., 2009). Studies on friendship quality of students with motor and/or sensory disabilities are scarce. To our knowledge, only one study focused on the friendship quality of students with visual impairments in secondary schools (Lifshitz, Hen, & Weisse, 2007). This study reported that students with visual impairments had quite similar levels of friendship quality compared to sighted students. The friendships of students with visual impairments and sighted students did not differ in the levels of intimacy and support, but students with visual impairments spent less leisure time with their friends than sighted students did (Lifshitz et al., 2007).

However, despite the increased attention for the social development of students with different types of SEN in inclusive education, several gaps in the knowledge base on friendship quality of students with SEN in inclusive education can be pointed out. First, research on friendship quality of children with ASD has been primarily directed towards elementary school children with ASD (e.g., Bauminger et al., 2008a; Bauminger, Solomon, Aviezer, Heung, Brown, & Rogers, 2008b; Bauminger, Solomon, & Rogers, 2010; Kasari et al., 2011; Solomon et al.,

2011; Webster & Carter, 2010). Studies on friendship quality of students with motor and/or sensory disabilities are virtually lacking. Second, studies included relatively small samples (maximum 44 children with disabilities; e.g., Bauminger et al., 2008a, 2008b). Third, studies were limited to quality of the self-rated, not necessarily reciprocated, friendships. Consequently, one cannot be sure if respondents talked about a real or a wished-for friendship. For example, Kasari and colleagues (2011) reported that in a former study (Bauminger & Kasari, 2000), students were asked to identify a friend. However, mothers later indicated that several children had identified their tutor, stepdad, or another unusual choice as their friend. Nonetheless, reciprocity is regarded as a basic feature of friendship (Bukowski, Motzoi, & Meyer, 2009). Looking into friendship quality without checking the reciprocity of this relationship surpasses the most distinct feature of this relation. Fourth, most studies on friendship quality of students with SEN only assessed the quality of the students' self-rated best friendship with individuals that were not necessarily class- or schoolmates (e.g., Bauminger et al., 2004; Whitehouse et al., 2009). However, based on former studies among typically developing students (see earlier), it is assumed that for students at risk for social problems at school, it is important to consider the quality of all their reciprocated friendships within that context. Nonetheless, studies on the quality of friendships students with ASD have with their classmates in mainstream schools are limited. Fifth, none of the previous studies took possible gender differences into account. Previous research in elementary and secondary school revealed that in the typically developing population, friendship quality is rated higher among girls than among boys (e.g., Berndt & McCandless, 2009; Bowker, 2004; Malcolm et al., 2006). So far, nothing is known about gender differences in friendship quality for the SEN population.

Moreover, the relationship between the number of mutual friendships and the quality of these friendships has never been studied for students with SEN. This relationship might shed a different light on earlier findings, in which students with SEN have been found to have fewer friends than typically developing students. For example, Pijl and colleagues (2008) reported that almost a quarter of the students with SEN did not have a single reciprocated friend in mainstream seventh grade, while this was only the case for 7.4% of the typically developing students. Due to this discrepancy in the number of friendships, these students were often considered to be "at risk." However, based on former research of Waldrip and colleagues (2008), one might argue that having one, qualitatively good mutual friendship is as good as having many, less qualitative friends. On the other hand, the social situation of many students with SEN might be even more problematic when the quality of their mutual friendship(s) is reduced as well. This question can only be fully answered when both quantity and quality of mutual friendship relations are taken into account.

Another important issue to consider when studying friendship quality is the concordance or discordance of the target student's and friend's perceptions of the quality of their relationship. Discordance in friends' perceptions about their relationship quality might indicate difficulties in interpersonal understanding (Brendgen, Little, & Krappman, 2000). Based on two main theories, that is, the affective theory and the theory of mind, discordance in friends' perceptions might be more prone in students with ASD's friendships. According to the affective theory, students with ASD lack the basic ability to experience relationship-based emotions (Hobson, 2005), predicting difficulties in intimacy. According to the theory of mind, students with ASD have particular difficulties in understanding that other people have different thoughts, desires, and feelings (Bauminger et al., 2008a). Understanding a partner's needs and integrating them with one's own

is an important prerequisite to achieve intimacy in relations (Solomon et al., 2011). Research among elementary school-aged children with high functioning autism did not detect differences in the perception of these children and their best friends on their friendship quality (Bauminger et al., 2008a; Solomon et al., 2011). Despite the increasing level of intimacy in adolescents' social relationships (Rubin et al., 2006), so far, nothing is known about concordance/discordance of perceptions of students with ASD and their friends, or the perceptions of students with motor and/or sensory problems and their friends, in a secondary school setting.

HYPOTHESES

This study aims to address gaps in the current knowledge base by answering the following research questions:

1. Are there differences in companionship, intimacy, and support in the reciprocal friendships of boys and girls with ASD, boys and girls with motor and/or sensory disabilities, and typically developing boys and girls with their classmates at the start of mainstream secondary education?
2. Is there a relation between students' number of friends in their class and the levels of companionship, intimacy, and support of these friendships, and is this relation different for boys and girls with ASD, boys and girls with motor and/or sensory disabilities, and typically developing boys and girls?
3. Do students with ASD, students with motor and/or sensory disabilities, and their typically developing friends differ in their perception of the companionship, intimacy, and support of their shared friendship?

Based on former research, we expected to find lower levels of companionship, intimacy, and support of the friendships among students with ASD, compared to typically developing students. Levels of companionship, intimacy, and support of students with motor and/or sensory disabilities were compared with those in the other two groups in an exploratory way, as was the relationship between the number of mutual friendships and friendship quality. Based on the affective theory and the theory of mind (cf. *supra*), we expected to find differences in perceptions of intimacy, but not in perceptions of companionship and support between students with ASD and their typically developing friends on their shared friendship. Perceptions of students with motor and/or sensory disabilities and their typically developing friends on the levels of companionship, intimacy, and support in their shared friendships will be compared in an exploratory way.

METHOD

Participants

Participants were 1,494 students (845 boys, 56.56%) in 100 regular seventh grade classrooms with at least one student with SEN from 56 different schools. Most students were between

12 and 13 years ($M = 4784.36$ days; $SD = 205.25$ days). Four typically developing students did not fill out the questionnaire completely and data on their friendship quality were missing. These students were deleted list-wise, retaining 1,375 typically developing students, 65 students with ASD, and 50 students with motor and/or sensory disabilities from 100 different classes and 56 different schools. The majority of the schools only had one class in the study (57%). The study comprised maximum six classes of the same school. Furthermore, in the majority of the classes (86%), only one student with SEN was part of the class group. In thirteen classes (13%), two students with SEN were included, and in a single class three students with SEN were included.

All students in the study had at least one reciprocal friendship. The assessment of reciprocal friendships was based on sociometric data. To guarantee reliable sociometric data, only classes in which more than 70% of the students filled out the questionnaire were included in the study (Crick & Ladd, 1989). All students with SEN were fully included in mainstream schools, that is, they attended all classes together with their typically developing classmates. Furthermore, all students with SEN were eligible for extra support from a peripatetic teacher of a special education school. As the procedure prescribes, all students were diagnosed by a multidisciplinary team. According to their diagnoses, none of the students with SEN had an intellectual disability.

Typically developing students, students with ASD, and students with motor and/or sensory disabilities did not differ in socioeconomic status ($F(2,1487) = 0.08$; $p > 0.05$), students' age ($F(2,1487) = 2.64$; $p > 0.05$), country of origin ($\chi^2(12) = 1.33$; $p > 0.05$), mother's country of origin ($\chi^2(12) = 13.13$; $p > 0.05$), father's country of origin ($\chi^2(12) = 10.27$; $p > 0.05$), and language spoken at home ($\chi^2(10) = 7.12$; $p > 0.05$). As expected, there were significantly more boys in the subgroup of students with ASD (87.69%) to the group of typically developing students (54.60%; $\chi^2(1) = 27.59$; $p < 0.001$) and the group of students with motor and/or sensory disabilities (70.00%; $\chi^2(1) = 5.53$; $p < 0.05$). Although less pronounced, there were also more boys in the subgroup of students with motor and/or sensory disabilities (70.00%) compared to group of typically developing students (54.60%; $\chi^2(1) = 4.62$; $p < 0.05$). Current epidemiological data estimate the male to female ratio in autism to be 3–4:1 (Baird et al., 2006). This ratio is even higher in the normative IQ range, as girls with autism, as a group, show higher rates of co-existing intellectual disabilities than males (e.g., Volkmar, Szatmari, & Sparrow, 1993). Furthermore, boys, on average, are more prone than girls to some hereditary diseases, which might cause motor and/or sensory disabilities. For example, muscular dystrophies affect mainly male children (Romitti et al., 2009).

Procedure

This study was part of a large-scale longitudinal study on social participation of students with SEN at the start of mainstream secondary schools in Flanders, the Dutch-speaking region of Belgium. Between November 2009 and March 2010, participants for this large-scale study were identified in 84 different schools in Flanders. Prior to identification of the participants, permission was obtained from the school principals. Once permission was obtained from the principals, an invitation letter for the parents of the students with SEN was sent to the school to hand out. Due to privacy reasons, parents or students were not contacted directly. Only after active consent was obtained from the parents of the students with SEN, separate consent forms

were sent to the parents of the classmates, describing the research as a study of “friendships in schools.” In the consent letter, students with SEN were not mentioned in the description of the study to assure participants’ confidentiality. Data were collected by means of a written questionnaire in the spring of 2010, at the end of seventh grade.

Measures

Reciprocity of Friendships

To assess friendships, sociometric nominations were used. Based on a class list, students were asked to nominate their best friends in class. Students could nominate maximum five friends. Former studies (e.g., Pijl et al., 2008) have indicated that five friends is a stable option, restricting the freedom of choice for respondents minimally. Friendship was defined as a reciprocated nomination (Bukowski et al., 2009). A respondent had a friend if the respondent nominated a peer and that same peer nominated him or her as a friend.

Companionship, Intimacy, and Support of Reciprocated Friendships

Based on a study on the quality of all reciprocated friendships of typically developing fifth to eighth graders (Malcolm et al., 2006; Waldrip et al., 2008), students were asked to answer four questions about the quality of each nominated friend. The items could be answered on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The four questions assessed companionship (i.e., “I spend fun time with this person”), intimacy (i.e., “I share private thoughts and feelings with this person”), and two items of support (i.e., “I depend on this person for help, advice, and support” and “This person sticks up for me”). Internal consistency of both support items, assessed by the Cronbach’s alpha coefficient, was high—0.82. For each respondent, three different measures were used: the raw score of the companionship item, the raw score of the intimacy item, and the mean score of both support items.

Analyses

Analyses took place in several steps. In a first step, NEGOPY 4.30 software (Richards, 1995) was used to identify the number of reciprocal friendships and to verify the identity of these reciprocal friends. In a second step, descriptive analyses were performed in SPSS 19.0 (IBM, 2010). For each group, descriptive statistics of the number of friendships and friendship quality were calculated. In a third step, multilevel regression analyses were used to answer our research questions.

Because the data were nested—friendships within students, students within classes, classes within schools—multilevel regression analyses were used. Whereas ANOVA’s focus on analyzing differences between the mean values, multilevel analyses can model both fixed effects (similar to calculating differences between mean values) and random effects. By fitting random effects, differences within groups can be calculated as well. All models for this study were fit using MLwiN 2.25 (Rasbash, Browne, Healy, Cameron, & Charlton, 2012). Furthermore, multilevel models were built based on the technique described in Hox (2010). Every model was compared to the previous model, based on the likelihood ratio test.

To answer the first two research questions (1 & 2), multilevel regression analyses, combining four levels: friendship level (level 1), student level (level 2), class level (level 3), and school level (level 4) were used. Three different analyses, one for each dependent variable—companionship, intimacy, and support—were conducted. For each analysis, three different independent variables were used on the student level: type of student (typically developing students, students with ASD, and student with motor and/or sensory disabilities), gender, and number of friends. Interaction-effects were tested as well. To control for differences in class sizes, class size was inserted as an independent variable on the class level. For all analyses, typically developing male students with an average amount of friends ($N = 3.38$), in an average class sized group ($N = 18.28$) were chosen as a reference group. In post-hoc analyses, contrasts were calculated to assess differences between all groups (i.e., typically developing boys, typically developing girls, boys with ASD, girls with ASD, boys with motor and/or sensory disabilities, and girls with motor and/or sensory disabilities; Hox, 2010). The Bonferroni correction was used to assess significance of differences between each group.

To answer the last research question (3) on possible differences in perceptions of students with SEN and typically developing students on the quality of their shared friendships, only the friendships of students with SEN with typically developing classmates were retained ($N = 251$). Five nonmixed friendships—friendships between two students with SEN—were discarded. Based on these data, two different datasets were constructed. A first dataset contained all friendships of students with ASD and their typically developing classmates ($N = 142$), while a second dataset contained all friendships of students with motor and/or sensory disabilities and their typically developing classmates ($N = 109$). For each group, three multilevel regression analyses were conducted; one for each dependent variable: companionship, intimacy, and support. Data were organized according to a maximum of five levels—the perception of each friend (level 1), the shared friendship (level 2), the student with ASD or the students with motor and/or sensory disabilities (level 3), class (level 4), and school (level 5). One independent variable was used on the perception level—perception of the student with ASD/student with motor and/or sensory disabilities, and the perception of their typically developing friend. For all analyses comparing the perception of the students involved in mixed friendships, the perception of the student with ASD/student with motor and/or sensory disabilities was chosen as a reference group.

RESULTS

Companionship, Intimacy, and Support of Reciprocated Friendships

After identifying the number of friends and the identity of the friends of each participant in the study, descriptive analyses were performed in SPSS 19.0. Results are depicted in Table 1.

In a third step, hypotheses were tested in multilevel regression analyses. Preliminary analyses in MLWiN 2.25 indicated that schools did not have a significant effect on the companionship, intimacy and support level experienced within the reciprocated friendships of their students. Differences between classes were significant but rather small, explaining 4.27% of the total variance of companionship, 8.10% of the total variance of intimacy, and 9.28% of the total variance of support. Individual differences within classes had a large effect, explaining 34.56%

TABLE 1
Descriptives of Reciprocal Friendships on Student Level

Group	n	Reciprocal Friends			Companionship M (SD)	Intimacy M (SD)	Support M (SD)
		M	1 Friend (%)	Range			
<i>Typically Developing Students</i>							
Total	1375	2.90	15.30	1–5	4.47 (0.56)	2.94 (1.22)	3.61 (0.98)
Boys	53	2.88	15.67	1–5	4.43 (0.58)	2.57 (1.23)	3.41 (1.04)
Girls	622	2.93	14.86	1–5	4.53 (0.53)	3.40 (1.06)	3.86 (0.84)
<i>Students with ASD</i>							
Total	65	2.28	29.23	1–5	4.15 (0.75)	2.25 (1.17)	3.19 (1.04)
Boys	57	2.26	29.82	1–5	4.12 (0.78)	2.14 (1.10)	3.14 (1.07)
Girls	8	2.38	25.00	1–5	4.38 (0.41)	3.06 (1.37)	3.52 (0.78)
<i>Students with Motor and/or Sensory Disabilities</i>							
Total	50	2.26	26.00	1–5	4.23 (0.76)	2.74 (1.31)	3.60 (1.06)
Boys	35	2.29	22.86	1–5	4.16 (0.79)	2.30 (1.18)	3.38 (1.07)
Girls	15	2.20	33.33	1–4	4.39 (0.68)	3.77 (1.01)	4.11 (0.90)

of the total variance of companionship, more than 41.10% of the total variance of intimacy, and 41.89% of the total variance of support. Consequently, multilevel regression analyses included three levels: class level, individual level, and friendship level. The final models for each dependent variable are displayed in Table 2.

Results indicated no significant differences in the levels of companionship and support of the reciprocated friendships of students with ASD, students with motor and/or sensory disabilities and typically developing students. Students with ASD reported lower levels of intimacy in their reciprocated friendships compared to typically developing students ($p < 0.05$). The reported intimacy levels of the friendships of students with motor and/or sensory disabilities did not differ from the intimacy levels reported by typically developing students, or students with ASD.

We did find a general gender effect, indicating that female students reported higher levels of companionship, intimacy, and support in their friendships compared to male students. Moreover, the quality of girls' friendships varied less than the quality of boys' friendships (i.e., $\sigma_{\text{girls,companionship}}^2 = 0.14$; $\sigma_{\text{boys,companionship}}^2 = 0.20$; $\sigma_{\text{girls,intimacy}}^2 = 0.55$; $\sigma_{\text{boys,intimacy}}^2 = 0.93$; $\sigma_{\text{girls,support}}^2 = 0.36$; $\sigma_{\text{boys,support}}^2 = 0.67$). Furthermore, no significant interaction effects were found for type of student and gender. The amount of reported companionship in each friendship also varied by class size. Variance of levels of companionship was lowest around the average class size of 18.25, but variance increased as class size changed (bigger of smaller classes).

Figure 1 displays differences on each friendship characteristic for each of the six groups (i.e., typically developing boys, typically developing girls, boys with ASD, girls with ASD, boys with motor and/or sensory disabilities and girls with motor and/or sensory disabilities) with an average amount of friends in an average-sized classroom. Confidence intervals indicated that

TABLE 2
Multiple Regression Analyses, Final Models

	Companionship			Intimacy			Support		
	β	SE	p	β	SE	p	β	SE	p
<i>Fixed Effects</i>									
Cons	4.44	0.02	<0.001	2.63	0.06	<0.001	3.48	0.05	<0.001
Students with ASD	-0.10	0.12		-0.54	0.22	<0.05	-0.14	0.18	
Students with motsens.	-0.07	0.14		-0.19	0.29		0.06	0.24	
Female	0.09	0.03	<0.01	0.69	0.06	<0.001	0.35	0.05	<0.001
Nfriend	<0.01	0.02		0.03	0.04		0.07	0.03	<0.05
Female students with ASD	0.19	0.39		0.27	0.47		-0.18	0.38	
Female students with motsens.	0.03	0.24		0.53	0.47		-0.13	0.39	
Students with ASD × Nfriend	0.08	0.10		-0.13	0.15		0.05	0.13	
Students with motsens. × Nfriend	0.16	0.11		-0.09	0.22		0.04	0.18	
Female students × Nfriend	-0.01	0.03		-0.11	0.05	<0.05	-0.06	0.04	
Female students with ASD × Nfriend	-0.03	0.28		-0.03	0.31		-0.10	0.25	
Female students with motsens. × Nfriend	-0.11	0.18		-0.07	0.35		-0.35	0.28	
Class size	0.01	<0.01	<0.05	0.01	0.01		0.02	0.01	<0.01
<i>Random Parameters</i>									
Level 3: Class									
Cons	0.01	0.01		0.09	0.02	<0.001	0.09	0.02	<0.001
Class size/Class size	<0.01	0.00							
Class size/Cons	<-0.01	<0.01	<0.05						
Level 2: Student									
Cons	0.20	0.02	<0.001	0.93	0.07	<0.001	0.67	0.05	<0.001
Female/Cons	-0.03	0.01	<0.01	-0.19	0.04	<0.001	-0.16	0.03	<0.001
Nfriend × ASD/Nfriend × ASD	0.24	0.10	<0.01						
Nfriend × ASD/Cons	0.18	0.08	<0.01						
Nfriend × ASD/female	0.07	0.04	<0.05						
Level 1: Friendship									
Cons	0.31	0.01	<0.001	1.05	<0.01	<0.001	0.65	0.02	<0.001
-2*Loglikelihood		8522.77			13921.73			11996.17	

Note. Cons = constant, typically developing boys; motsens. = motor and/or sensory disabilities; Nfriend = number of friends.

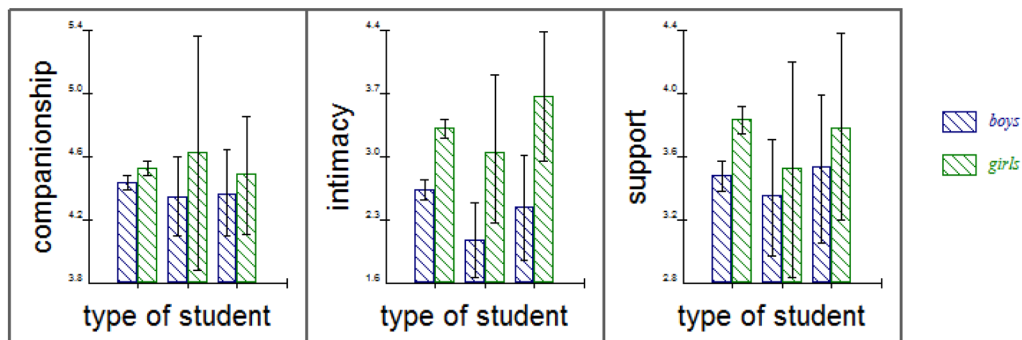


FIGURE 1 Bar plots with 95% confidence intervals for companionship, intimacy, and support for typically developing students, students with ASD, and students with motor and/or sensory disabilities, split by gender.

the intimacy level of 95% of the typically developing girls is higher than the intimacy level of 95% of the typically developing boys, boys with ASD, and boys with motor and/or sensory disabilities. Confidence intervals also indicated that the intimacy level of the friendships of 95% of the typically developing boys was also higher than the intimacy level of 95% of the boys with ASD. Furthermore, according to the confidence intervals, the support level within friendships of 95% of the typically developing girls is higher than the support level in the friendships of 95% of the typically developing boys. Based on the confidence intervals, no other differences could be found. After applying the Bonferroni correction for multiple testing, post-hoc analyses comparing the friendship quality of each of the six groups confirmed that typically developing girls reported significantly higher intimacy ($p < 0.001$) and support levels ($p < 0.05$) than typically developing boys did ($p < 0.001$). Furthermore, intimacy levels of typically developing girls were significantly higher than the intimacy levels of boys with ASD ($p < 0.01$). No other significant differences were found between typically developing boys and girls, boys and girls with ASD, and boys and girls with motor and/or sensory disabilities.

Relation Number of Friendships and Friendship Quality

The number of friends was not related to the levels of companionship and intimacy experienced in the reciprocated friendships. However, the number of friends was related to the level of support experienced in the reciprocated friendships. Students with more friends indicated to experience significantly more support in their friendships than students with less friends did ($p < 0.05$). The number of friends did not predict friendship quality of students with SEN differently compared to typically developing students. However, we found a higher variance in the companionship levels of students with ASD with more than an average amount of friends. Whereas the variance of companionship within friendships equaled 0.20 for typically developing boys, regardless of the number of friends they had, for boys with ASD with more than an average amount of friends the variance of companionship raised by 0.80 for each additional friend. For girls with ASD, this variance increased more—0.88 for each additional friend.

Perceptions of Students with SEN and Typically Developing Students on their Shared Friendships

Table 3 displays the differences in perceptions of students with ASD and students with motor and/or sensory disabilities and their typically developing friends. Schools and classes did not have a significant effect on the perspectives of the students on their mixed friendship. For perspectives on support in the friendships of students with ASD and the perspectives on support and intimacy of students with motor and/or sensory disabilities, variance between the friendships of the same students with SEN was not significant. In this case, two levels remained: perspective of each friend (level 1) and the individual level of the student with SEN (level 2). For perspectives on companionship and intimacy of the friendships of students with ASD, and companionship of the friendships of students with motor and/or sensory disabilities, three levels remained: perspective of each friend (level 1), friendship level (level 2), and individual level of students with SEN (level 3).

In general, students with ASD and students with motor and/or sensory disabilities and their typically developing friends did not differ in their view on the companionship, intimacy and support experienced in their shared friendship. Some minor differences in the variances of both groups were found. In general, the perceptions of the typically developing friends on the friendship quality differed more than the perceptions of the students with ASD and motor and/or sensory disabilities themselves. Furthermore, the perceptions of the students with ASD and motor and/or sensory disabilities differed more on the student level than the perceptions of their typically developing friends did.

DISCUSSION

This study focused on the quality of reciprocated friendships of students with SEN at the start of mainstream secondary school. A first aim was to look into differences and/or similarities of companionship, intimacy, and support in reciprocated friendships of six different groups (i.e., boys with ASD, girls with ASD, boys with motor and/or sensory disabilities, girls with motor and/or sensory disabilities, and typically developing boys and girls) with their classmates. Results indicated that there were no significant differences in companionship and support in the reciprocal friendships of students with ASD, students with motor and/or sensory disabilities, and typically developing students with their classmates at the start of mainstream secondary education. Nonetheless, students with ASD did report lower levels of intimacy in their friendships, compared to typically developing students. No significant differences were found in the intimacy levels of the friendships of students with motor and/or sensory disabilities and typically developing students. Girls indicated higher friendship quality compared to boys. Schools did not affect the companionship, intimacy, and support experienced in the reciprocated friendships of their students and the effect of classes on friendship quality was rather limited (4.27%–9.28% of the total variance).

These findings only partially confirm former studies. This finding that students with ASD experience less intimacy in their friendships, compared to their peers confirms earlier results on friendship quality of students with ASD (Bauminger & Kasari, 2000; Bauminger et al., 2004; Bauminger et al., 2008a; Solomon et al., 2011; Whitehouse et al., 2009). Whereas these

TABLE 3
Concordance or Discordance in Friends' Views on Friendship Quality

	<i>Companionship</i>			<i>Intimacy</i>			<i>Support</i>		
	β	<i>SE</i>	<i>p</i>	β	<i>SE</i>	<i>p</i>	β	<i>SE</i>	<i>p</i>
<i>Mixed Friendship of Students with ASD</i>									
<i>Fixed Effects</i>									
Cons	4.18	0.09	<0.001	2.27	0.14	<0.001	3.27	0.13	<0.001
noSEN	0.10	0.09		0.16	0.15		0.09	0.14	
<i>Random Parameters</i>									
Level: student with ASD									
cons/cons	0.21	0.08	<0.01	0.89	0.23	<0.001	0.52	0.19	<0.01
TYP/cons	-0.14	0.07	<0.05	-0.65	0.20	<0.01	-0.34	0.18	
TYP/TYP	0.12	0.09		0.51	0.25	<0.05	0.31	0.23	
Level: friendship									
cons/cons	0.13	0.06	<0.05	0.43	0.14	<0.01			
Level: perception									
cons/cons	0.37	0.06	<0.001	0.31	0.13	<0.05	1.03	0.11	<0.001
TYP/cons				0.57	0.15	<0.001			
-2*loglikelihood:	639.43			911.67			869.01		
<i>Mixed Friendships of Students with Motor and/or Sensory Disabilities</i>									
<i>Fixed Effects</i>									
Cons	4.34	0.09	<0.001	2.72	0.19	<0.001	3.58	0.15	<0.001
noSEN	0.04	0.11		-0.09	0.20		-0.25	0.19	
<i>Random Parameters</i>									
Level: student with motor and/or sensory disability									
cons/cons	0.22	0.09	<0.05	1.25	0.34	<0.001	0.80	0.23	<0.001
TYP/cons	-0.16	0.08	<0.05	-0.71	0.30	<0.05	-0.54	0.23	<0.05
TYP/TYP	0.31	0.11	<0.01	0.61	0.39		0.87	0.35	<0.05
Level: friendship									
cons/cons	0.20	0.06	<0.001						
Level: perception									
cons/cons	0.22	0.04	<0.001	0.79	0.14	<0.001	0.55	0.10	<0.001
TYP/cons				0.55	0.18	<0.01	0.27	0.11	<0.05
-2*loglikelihood:	473.90			743.72			662.33		

Note. cons = constant, student with SEN; TYP = typically developing student.

former studies found a lower level of intimacy in the single best friendship of students with ASD, this study extends these findings to all best friendships in a class context. Contrary to other studies on the quality of self-nominated best friendships of 12–13-year-old students with ASD (Bauminger & Kasari, 2000; Bauminger et al., 2004; Whitehouse et al., 2009), we did not detect lower levels of companionship and support in the friendships of students with ASD. However, these studies focused only on the quality of self-nominated best friendships. As other scholars, we argued that the quality of all reciprocal friendships within the context have to be taken into account to have a general idea on someone's social position within that context (e.g., Malcolm et al., 2006; Waldrip et al., 2008). Our findings suggest that when taking into account all reciprocated friendships in the class, friendship quality among fully included students with ASD at this age does not differ significantly from friendship quality of typically developing students. However, it must be noted that the students with ASD in this sample, all had at least one reciprocated friendship. As Bauminger and colleagues (2008b) have argued, it is possible that students with ASD who form friendships have relatively higher overall social-emotional capabilities compared to students with ASD without reciprocated friendships. For example, for this study almost a quarter of the students with ASD and one fifth of the students with motor and/or sensory disabilities did not have a single reciprocated friend in mainstream seventh grade, while this was only the case for 9.50% of the typically developing students.

Furthermore, the levels of self-reported companionship, intimacy and support in the reciprocated friendships of students with motor and/or sensory disabilities with their classmates did not differ from the friendship quality of typically developing students. This confirms the findings of the scarce studies on friendship quality among students with motor and/or sensory disabilities, stating that students with visual impairments reported similar levels of friendship quality compared to sighted students (Lifshitz et al., 2007). The finding by Lifshitz and colleagues (2007) that students with visual impairments reported to spend less leisure time with their friends than sighted students do was not reflected in a difference in companionship of the students with motor and/or sensory disabilities in our study. However, students with visual impairments only constituted a minor part of the students with motor and/or sensory disabilities in our study. Furthermore, our study only regarded reciprocated friendships with classmates. It might be that students did not include leisure time outside of the school setting in the evaluations of the friendships with their classmates. In sum, no significant differences were found in the first direct comparison of the friendship quality of students with motor and/or sensory disabilities and students with ASD in mainstream seventh grade.

A second aim of this study was to unravel the relationship between number of friendships and friendship quality. Analyses revealed no significant relationship between the number of friendships and companionship and intimacy in friendships. Only one significant positive relation was discovered between the number of friendships and the level of support experienced within these friendships. In previous studies, students with SEN, and especially students with ASD, were described as at risk for social isolation, based on their lower number of friendships and levels of peer acceptance (e.g., Pijl et al., 2008). Our study puts former findings into a different perspective. Although students with more friends indicate to receive more support within their friendships, it seems like students with a few friends value these friendships as much as students with more friends do. Moreover, based on studies among typically developing students, we know that even when overall peer acceptance and number of friendships is low, high-quality friendships may form an important buffer against victimization and contribute to

adolescents' behavioral, emotional, and social adjustment (Malcolm et al., 2006; Waldrip et al., 2008).

A third aim was to compare perceptions of friendship quality of students with SEN and their friends. Similar to former studies among younger students with ASD (Bauminger et al., 2008a; Solomon et al., 2011), in this study, students with ASD and students with motor and/or sensory disabilities and their typically developing friends did not differ in their perception on companionship, intimacy, and support of their shared friendship. This finding indicates that students with SEN show a level of interpersonal awareness. This finding is especially important for students with ASD, who according to the theory of mind and the affective theory, have difficulties in understanding that other people have different thoughts, feelings, and desires and lack the ability to experience relation-based emotions. Based on our sample, it seems like these processes, described by these theories, did not have a significant effect on the quality of the friendships of the students with ASD in mainstream seventh grade. Nonetheless, another explanation for not finding differences in the perception of students with ASD and students with motor and/or sensory disabilities and their typically developing friends on their shared friendship might be found in the homophily hypothesis (McPherson, Smith-Lovin, & Cook, 2001). Former research clearly shows that students show preference to associate with similar peers, like for example peers with similar social skills (Pijl, Frostad, & Mjaavatn, 2011). Having friends with similar social skills might also explain why no differences were found in the perceptions of students with SEN, and in particular students with ASD, and their typically developing friends on the level of companionship, intimacy, and support of their shared friendship.

Strengths, Limitations, and Future Directions

This study contributes to our understanding of friendship quality of students with SEN in mainstream secondary schools. Several strengths can be pointed out. First, this study is the first large-scale study regarding quality of friendships of students with SEN at the start of mainstream secondary school. Second, for the first time, friendship quality of reciprocated friendships of both students with ASD and students with motor and/or sensory disabilities was studied. Third, this study took the quality of all reciprocated friendships in class into account, contrary to the majority of former studies in which only the quality of the best friendship was assessed. By including the quality of all reciprocated friendships, a more complete picture could be obtained regarding the general relationship quality of students with SEN. Fourth, this study linked friendship quality with the number of reciprocated friends, which allowed us to get a better grasp on the social situation of students with only a few friends. Finally, different perspectives were taken into account, that is, the perspective of the students with SEN and the perspective of their friends.

Some limitations should be pointed out as well. First, based on our definition of friendships, this study only included students with at least one reciprocated friendship. This criterion excluded a considerable part of the students with SEN. Second, the friendship quality instrument was based on a similar study on the relationship between quality of all reciprocated friendships and victimization in typically developing students (Malcolm et al., 2006). Only the friendship aspects that seemed to be important as a buffer against victimization were included in this study. Consequently, Malcolm and colleagues (2006) did not include closeness

of the friendship relation or negative aspects of friendship relations, such as conflict and betrayal, in the questionnaire. Nonetheless, it would be interesting to study if these aspects of friendship quality present themselves differently in the friendships of students with SEN and typically developing students. Another limitation concerns the sample size. Contrary to former studies, this study contained a rather large sample of students with SEN. However, as has been highlighted by Kasari and colleagues (2011), collecting sufficient data within school settings that involve as few as one or two classrooms per school which contain a student with SEN is a labor-intensive process. Due to the smaller sample sizes of students with SEN, compared to the typically developing subsample, we might not have been able to detect minor differences between typically developing students and students with SEN in friendship quality. Consequently, in some cases, the Bonferroni correction for multiple testing might have been too conservative. In these cases, the graphs containing the 95% confidence intervals might give a better indication of the differences between the six subgroups.

The results of this study generated interesting new questions for future research on the predictors and the consequences of friendship relationships of students with SEN. A first question is related to the contradictory findings on companionship and support of the reciprocated friendships of students with ASD compared to typically developing students at this age. As said before, this might be due to taking all reciprocated friendships into account instead of only the single best friendship, but it might also be due to the restriction of our sample, that is, to include only students with at least one reciprocated friendship. Consequently, several questions arise: Are students included in this sample, that is, students with ASD with at least one reciprocated friendship, students who have better social skills than students with ASD without reciprocated friendships? Or do students with ASD have particular difficulties with making friends, but not so much with maintaining friendships? Research on the predictors of the number and quality of friendship relationships might generate a better view on students' with ASD social adaptation. This information might facilitate decision making regarding orientation of specific students with ASD to mainstream or special education, and/or if extra support should be provided.

Another question concerns the long-term stability of friendships and friendship quality. In samples of typically developing peers, friendship stability contributes significantly and independently to the child's development (e.g., Chan & Poulin, 2007; Gifford-Smith & Brownell, 2003). According to Bowker (2004), about 50% of the reciprocated best friendships of typically developing students remained stable across seventh grade and the stability of social networks increases by grade (Degirmencioglu, Urberg, Tolson, & Richard, 1998). Stability of peer relations of students with SEN remains an understudied topic. So far, only a few studies on stability of peer relations of students with SEN are known to us (e.g., Frostad, Mjaavatn, & Pijl, 2011). Studying friendship stability might not only give us a more complete view on the social relationships of students with SEN in mainstream secondary schools, but might also provide some answers to our hypotheses regarding difficulties of students with ASD in making and maintaining friends.

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REFERENCES

- Baird, G., Simonoff, E., Pickles, A., Chandler, S., Loucas, T., Meldrum, D., et al. (2006). Prevalence of disorders of the autism spectrum in a population cohort of children in South Thames: The Special Needs and Autism Project (SNAP). *The Lancet*, *368*, 210–215. doi:10.1016/S0140-6736(06)69041-7.
- Bauminger, N. & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development*, *71*, 447–456. doi:0009-3920/2000/7102-0014.
- Bauminger, N., Shulman, C., & Agam, G. (2004). The link between perceptions of self and of social relationships in high-functioning children with autism. *Journal of Developmental and Physical Disabilities*, *16*, 193–214. doi:10.1023/B:JODD.0000026616.24896.c8.
- Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Gazit, L., Brown, J., et al. (2008a). Children with autism and their friends: A multidimensional study of friendship in high-functioning autism spectrum disorder. *Journal of Abnormal Child Psychology*, *36*, 135–150. doi:10.1007/s10802-007-9156-x.
- Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Brown, J., & Rogers, S. J. (2008b). Friendship in high-functioning children with Autism Spectrum Disorder: Mixed and non-mixed dyads. *Journal of Autism and Developmental Disorders*, *38*, 1211–1229. doi:10.1007/s10803-007-0501-2.
- Bauminger, N., Solomon, M., & Rogers, S. J. (2010). Predicting friendship quality in Autism Spectrum Disorders and typical development. *Journal of Autism and Developmental Disorders*, *40*, 751–761. doi:10.1007/s10803-009-0928-8.
- Berndt, T. J. & McCandless, M. A. (2009). Methods for investigating children's relationships with friends. In K. H. Rubin (Series Ed.), W. M. Bukowski, & B. Laursen (Vol. Eds.), *Social, emotional, and personality development in context: Handbook of peer interactions, relationships, and groups* (pp. 63–81). New York: The Guilford Press.
- Bowker, A. (2004). Predicting friendship stability during early adolescence. *The Journal of Early Adolescence*, *24*, 85–112. doi:10.1177/0272431603262666.
- Brendgen, M., Little, T. D., & Krappmann, L. (2000). Rejected children and their friends: A shard evaluation of friendship quality? *Merrill-Palmer Quarterly*, *46*, 45–70.
- Brown, B. B. & Klute, C. (2003). Friendships, cliques, and crowds. In G. R. Adams, & M. D. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 330–349). Malden, MA: Blackwell.
- Bukowski, W. M., Motzoi, C., & Meyer, F. (2009). Friendship as process, function, and outcome. In K. H. Rubin (Series Ed.), W. M. Bukowski, & B. Laursen (Vol. Eds.), *Social, emotional, and personality development in context: Handbook of peer interactions, relationships, and groups* (pp. 217–232). New York: The Guilford Press.
- Chamberlain, B., Kasari, C., & Rotherham-Fuller, E. (2007). Involvement or isolation? The social networks of children with autism in regular classrooms. *Journal of Autism and Developmental Disorders*, *37*, 230–242. doi:10.1007/s10803-006-0164-4.
- Chambers, S. M. & Kay, R. W. (1992). Research on social integration: What are the problems? *International Journal of Disability, Development and Education*, *39*, 47–59. doi:10.1080/0156655920390106.
- Chan, A. & Poulin, F. (2007). Monthly changes in the composition of friendship networks in early adolescence. *Merrill-Palmer Quarterly—Journal of Developmental Psychology*, *53*, 578–602. doi:10.1353/mpq.2008.0000.
- Crick, N. R. & Ladd, G. W. (1989). Nominator attrition: Does it affect the accuracy of children's sociometric classifications? *Merrill-Palmer Quarterly*, *35*, 197–207.
- Degirmencioglu, S. M., Urberg, K. A., Tolson, J. M., & Richard, P. (1998). Adolescent friendship networks: Continuity and change of the school year. *Merrill-Palmer Quarterly—Journal of Developmental Psychology*, *44*, 313–337.
- Frostadt, P., Mjaavatt, P. E., & Pijl, S. J. (2011). The stability of social relations among adolescents with special educational needs (SEN) in regular schools in Norway. *London Review of Education*, *9*, 83–94. doi:10.1080/14748460.2011.550438.
- Gifford-Smith, M. E. & Brownell, C. A. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of School Psychology*, *41*, 235–284. doi:10.1016/S0022-4405(03)00048-7.
- Hardy, C. L., Bukowski, W. M., & Sippola, L. K. (2002). Stability and change in peer relationships during the transition to middle level school. *Journal of Early Adolescence*, *22*, 117–142. doi:10.1177/0272431602022002001.

- Hartup, W. W. (1996). The company they keep: Friendships and their developmental significance. *Child Development*, 67, 1–13. doi:10.1111/j.1467-8624.1996.tb01714.x.
- Hobson, P. (2005). Autism and emotion. In F. R. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), *Handbook of autism and pervasive developmental disorders* (pp. 406–422). Hoboken, NJ: Wiley.
- Hox, J. J. (2010). *Multilevel analysis. Techniques and applications* (2nd ed.). New York: Routledge.
- Humphrey, N., & Ainscow, M. (2006). Transition club: Facilitating learning, participation and psychological adjustment during the transition to secondary school. *European Journal of Psychology of Education*, 21, 319–331. doi:10.1007/BF03173419.
- Humphrey, N. & Symes, W. (2010). Perceptions of social support and experience of bullying among pupils with autistic spectrum disorders in mainstream secondary schools. *European Journal of Special Needs Education*, 25, 77–91. doi:10.1080/08856250903450855.
- Humphrey, N. & Symes, W. (2011). Peer interaction patterns among adolescents with autistic spectrum disorders (ASD) in mainstream school settings. *Autism*, 15, 397–419. doi:10.1177/1362361310387804.
- IBM (2012). *IBM SPSS statistics. Version 19*. IBM.
- Kasari, C., Locke, J., Gulsrud, A., & Rotherham-Fuller, E. (2011). Social networks and friendships at school: Comparing children with and without ASD. *Journal of Autism and Developmental Disorders*, 41, 533–544. doi:10.1007/s10803-010-1076-x.
- Lifshitz, H., Hen, I., & Weisse, I. (2007). Self-concept, adjustment to blindness, and quality of friendship among adolescents with visual impairments. *Journal of Visual Impairment & Blindness*, 101, 96–107.
- Locke, J., Ishijima, E. H., Kasari, C., & London, N. (2010). Loneliness, friendship quality and the social network of adolescents with high-functioning autism in an inclusive school setting. *Journal of Research in Special Educational Needs*, 10, 74–81. doi:10.1111/j.1471-3802.2010.01148.x.
- Malcolm, K. T., Jensen-Campbell, L. A., Rex-Lear, M., & Waldrip, A. M. (2006). Divided we fall: Children's friendships and peer victimization. *Journal of Social and Personal Relationships*, 23, 721–740. doi:10.1177/026407506068260.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444.
- Parker, J. G. & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29, 611–621.
- Pijl, S. J., Frostad, P., & Flem, A. (2008). The social position of pupils with special needs in regular schools. *Scandinavian Journal of Educational Research*, 52, 387–405. doi:10.1080/00313830802184558.
- Pijl, S. J., Frostad, P., & Mjaavaatn, P.-E. (2011). Segregation in the classroom: What does it take to be accepted as a friend? *Social Psychology of Education*, 14, 41–55. doi:10.1007/s11218-010-9135-x.
- Pijl, S. J., Meijer, C. J., & Hegarty, S. (1997). *Inclusive education: A global agenda*. London: Routledge.
- Pijl, S. J., Skaalvik, E. M., & Skaalvik, S. (2010). Students with special needs and the composition of their peer group. *Irish Educational Studies*, 29, 57–70. doi:10.1080/03323310903522693.
- Rasbash, J., Browne, W., Healy, M., Cameron, B., & Charlton, C. (2012). *MLwiN Version 2.25*. Bristol: Centre for Multilevel Modeling, University of Bristol.
- Richards, W. D. (1995). *Negopy 4.30. manual and user's guide*. Burnaby, BC: Simon Fraser University.
- Romitti, P., Puzhankara, S., Mathews, K., Zamba, G., Cunniff, C., Andrews, J. et al. (2009). Prevalence of Duchenne/Becker Muscular Dystrophy among males ages 5–24 years—four states, 2007. *Morbidity & Mortality Weekly Report*, 58, 1119–1122.
- Rubin, K. H., Bukowski, W., & Parker, J. G. (2006). Peer interactions, relationships and groups. In N. Eisenberg (Ed.), *Social, emotional and personal development* (6th ed., pp. 571–645). New York, NY: John Wiley & Sons.
- Scheys, M. (2011). *Statistisch jaarboek van het Vlaamse onderwijs* [Statistical Year Book of the Flemish Education System]. Brussels: Vlaams Ministerie van Onderwijs en Vorming. Retrieved from http://www.ond.vlaanderen.be/onderwijsstatistiek/2009-2010/statistisch%20jaarboek%202009-2010/Statistisch_Jaarboek_2009-2010_Pagina_001-023.pdf.
- Solomon, M., Bauminger, N., & Rogers, S. J. (2011). Abstract reasoning and friendship in high functioning preadolescents with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 41, 32–43. doi:10.1007/s10803-010-1017-8.
- Symes, W. & Humphrey, N. (2010). Peer-group indicators of social inclusion among pupils with autistic spectrum disorders (ASD) in mainstream secondary schools: A comparative study. *School Psychology International*, 31, 478–494. doi:10.1177/0143034310382496.

- Symes, W. & Humphrey, N. (2011). The deployment, training and teacher relationships of teaching assistants supporting pupils with autistic spectrum disorders (ASD) in mainstream secondary schools. *British Journal of Special Education*, 38, 57–64. doi:10.1111/j.1467-8578.2011.00499.x.
- United Nations (2006). *Convention on the rights of persons with disabilities and optional protocol*. New York: United Nations.
- Volkmar, F. R., Szatmari, P., & Sparrow, S. S. (1993). Sex differences in pervasive developmental disorders. *Journal of Autism and Developmental Disorders*, 23, 579–591. doi:10.1007/BF01046103.
- Waldrup, A. M., Malcolm, K. T., & Jensen-Campbell, L. A. (2008). With a little help from your friends: The importance of high-quality friendships on early adolescent adjustment. *Social Development*, 17, 832–852. doi:10.1111/j.1467-9507.2008.00476.x.
- Webster, A. A., & Carter, M. (2010). Characteristics of the closest relationships between children with developmental disabilities and peers in inclusive settings. *Australasian Journal of Special Education*, 34, 61–78. doi:10.1375/ajse.34.1.61.
- Whitehouse, A. J. O., Durkin, K., Jaquet, E., & Ziatas, K. (2009). Friendship, loneliness and depression in adolescents with Asperger's syndrome. *Journal of Adolescence*, 32, 309–322. doi:10.1016/j.adolescence.2008.03.004.