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EDITED BY

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REVIEWED BY

Nahia Idoiaga,
University of the Basque Country, Spain
Helena Kraehenmann,
University of Applied Sciences and Arts
Northwestern Switzerland, Switzerland

*CORRESPONDENCE

Ivonne Douma
✉ i.douma@renn4.nl

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Predicting peer acceptance among students with and without special educational needs in secondary educational settings

Ivonne Douma^{1,2*}, Matthijs Warrens³, Anke de Boer^{1,2} and
Alexander Minnaert¹

¹Department of Inclusive and Special Needs Education, University of Groningen, Groningen, Netherlands, ²Regional Centre of Expertise for EBD Schools (RENN4), Groningen, Netherlands, ³GION Education/Research, University of Groningen, Groningen, Netherlands

Introduction: Peer acceptance is an important positive educational and social outcome for all students in inclusive secondary education, whether students have a disability or not. Peer acceptance is influenced by the educational setting and the peers educated in this setting. However, not much is known about the predictors of peer acceptance among students in secondary educational settings. The aim of this study was to examine predictors for peer acceptance on two levels, predictors on the individual level (i.e., behavioural problems and social skills reported by teachers) and the peer level (i.e., prosocial and aggressive behaviour, popularity and academic achievement reported by peers).

Methods: Four groups of students ($N = 344$) educated in different secondary schools were included in the study. Two groups of typically developing students in secondary education ($n = 248$) and two groups of students in special secondary education with either an intellectual disability ($n = 68$) or students with social, emotional and behavioural difficulties ($n = 28$).

Results: Using peer nominations in the data collection and multilevel analyses, the results showed no evidence for individual level predictors for peer acceptance for all four groups of students. On the peer level, popularity and aggression were found to predict peer acceptance among students in secondary education.

Discussion: The results of this study emphasise the essential role of peer perceptions in acquiring peer acceptance and the importance of fostering prosocial behaviour to promote peer acceptance in educational practices.

KEYWORDS

peer acceptance, inclusive secondary education, intellectual disabilities, social-emotional behavioral difficulties, peer nominations, popularity, aggression, social skills

Introduction

Peer acceptance is an important construct in the social development of any individual, especially for adolescents during their formative secondary school years from grades 7 through 12. Peer acceptance is defined as the degree to which an individual is well-liked by their peers. The importance of peer acceptance, both in education and in life, has been demonstrated in numerous studies across several disciplines over the years. When focusing on the educational significance of peer acceptance, peer acceptance is associated with school adjustment and higher academic achievements (Flook et al., 2005), increased classroom participation (Ladd et al., 2008), better social adjustment (Bagwell et al., 2001; Ladd et al., 2012), reduced feelings of loneliness (Rubin et al., 2015; Woodhouse et al., 2012), and decreased internalising and externalising problems (Bagwell and Bukowski, 2018; Ladd and Troop-Gordon, 2003).

As mentioned, peer acceptance is important for positive educational and social outcomes, but peer acceptance is itself influenced by the educational setting. Since students primarily interact with their peers at school, schools serve as vital social settings that foster the development of peer acceptance (Handel, 2011; Lahelma, 2002; Killen and Rutland, 2011). Schools are nowadays not only tasked to educate students academically, but also to fulfil an instrumental role in the social development of their students (Eriksson and Granlund, 2004; Knickenberg et al., 2020). According to several internationally recognised covenants, schools even bear the responsibility to contribute to the social development of their students. With this responsibility and the global transition toward inclusive education, the role of education in students' social development is increasing with the global transition toward inclusive education (UNESCO, 2015; United Nations, 2006). Inclusive education can be defined as education in which all students, regardless of any disorders, disabilities or impairments, are educated together and whereby the educational environment ensures individualised support in order to maximise both academic and social development (Douma et al., 2022; UNESCO, 1994; United Nations, 2006). Inclusive education is also closely related to social participation (Bottrell and Goodwin, 2011). Social participation can be viewed as a combination of four key aspects, namely acceptance by peers, friendships with peers, social interactions with peers and a positive (social) self-concept (Koster et al., 2009). The incorporation of peer acceptance within social participation emphasises the importance of peer acceptance as a construct related not only to social participation but also to inclusive education. Therefore, when looking at peer acceptance, the school setting is a key variable to take into consideration.

School settings for students with disabilities can vary greatly. Though many countries have advanced in their efforts to make inclusive education the norm, many students with disabilities still reside in settings that are either segregated or not fully inclusive, but rather integrated. In integrated education, students with and without disabilities are educated in the same building and are provided with opportunities to learn and interact with each other, but are not necessarily educated fully together for the entire curriculum. Integrated education is seen as a stepping stone to inclusive education and is often viewed as the next step toward inclusive education (Norwich, 2008). Therefore, for convenience purposes, the term inclusive education will be used to refer to the integrated educational setting in this study.

Though peer acceptance is vital for social development, and schools provide an important social context for achieving peer acceptance, not all students are easily accepted by their peers. This is especially the case for students with special educational needs, such as students with an intellectual disorder (ID) or students with social, emotional and behavioural difficulties (SEBD). Various studies have shown that students with ID or SEBD are often less accepted than their typically developing peers (e.g., de Boer and Pijl, 2016; Pijl et al., 2008). In order for schools to support peer acceptance amongst students, it is important to determine relevant factors relating to peer acceptance. Only by understanding the mechanisms that foster or hinder peer acceptance, it is possible to effectively stimulate peer acceptance. However, it has proven to

be especially challenging in inclusive school settings to determine predictors for peer acceptance due to the heterogeneous nature of the student population in these settings (e.g., Garrote et al., 2020).

In the literature, various student characteristics have been identified that might be related to the lower peer acceptance rates of students with ID or students with SEBD. Research has shown that several factors contribute to the formation of peer acceptance between students in schools. These factors can be divided into factors on the individual level and factors on the peer level. Factors on the individual level pertain to student characteristics and are on the level of an individual, and predicting variables that are perceived by peers are factors on the peer level.

On the *individual level*, the presence and severity of behavioural problems and the level of social skills of students with ID or SEBD are often studied for their relation with peer acceptance and making friends (e.g., Douma et al., 2022; Gamboa et al., 2021; Garrote, 2017; Pijl et al., 2011; Pijl and Frostad, 2010). Having behavioural difficulties is a known predictor of peer rejection (Odom et al., 2006). Students with ID or SEBD are more likely to experience loneliness and bullying and are less accepted than their peers without behavioural problems (de Swart et al., 2022; Schoop-Kasteler and Müller, 2020). This poses difficulties for students with ID or SEBD in interactions with peers, since for both groups of students, displaying behavioural problems is inherent to their disability. In addition, students who experience peer rejection are at risk for developing (further) externalising behavioural problems (Laird et al., 2001).

Similarly to behavioural problems, a comparable relationship between peer acceptance and social skills has been found or suggested in the literature. Insufficient social skills are assumed to predict lower peer acceptance. Students with ID or SEBD are often considered to be at risk of acquiring insufficient social skills, due to a lack of interaction with peers and subsequently a lack of practice in social skills (de Monchy et al., 2007). Some studies have found that students displaying fewer social skills are less accepted by their peers. In particular, students with ID generally show less advanced social skills than their typically developing peers (Garrote, 2017). Due to their disability, students with ID experience more difficulties in learning appropriate social skills and have difficulties in peer interactions. The lack of social skills may contribute to students with ID being less accepted by their peers and experiencing more difficulties in making friends (de Monchy et al., 2007). However, not much research has been done to test this hypothesis and the limited research available is inconclusive: some studies do not support the hypothesis (e.g., Frostad and Pijl, 2007; Garrote, 2017), whilst others did find a relationship between social skills and peer acceptance (Schwab et al., 2015). For students with SEBD, insufficient social skills are occasionally regarded as a predictor for lower peer acceptance (de Swart et al., 2022; Frostad and Pijl, 2007; Pijl et al., 2011). However, research on the latter topic is also scarce, since insufficient social skills are assumed to be secondary to behavioural problems, and therefore, behavioural problems are more frequently researched as the main reason for the absence of peer acceptance in students with SEBD.

Predicting variables on the *peer level* that correlate with peer acceptance can also be found in behavioural components, such

as the extent to which students display prosocial or aggressive behaviours. Students displaying more prosocial behaviour are often more accepted by their peers (Eisenberg et al., 2015; Jennings and Greenberg, 2009; Milledge et al., 2019). However, the relationship between prosocial behaviour and peer acceptance in students with disabilities has not been comprehensively studied. The available research suggests that students with disabilities display lower levels of prosocial behaviour (e.g., Wagemaker et al., 2023). Students with more aggressive behaviour, however, are more likely to be rejected by their peers and have fewer friends (Avramidis, 2010; Cillessen and Mayeux, 2004; de Monchy et al., 2007). This is particularly relevant for students with SEBD, whose externalising behavioural problems may lead peers to perceive them as aggressive, thereby hindering their social acceptance and ability to form friendships.

Besides the behavioural components on the peer level, perceptions of peers about an individual's popularity (Cillessen and Rose, 2005; e.g. Dijkstra et al., 2013) and academic achievement (e.g., Wentzel et al., 2021) are also related to peer acceptance and friendships. However, these relationships have not been comprehensively studied when it comes to specific student groups, such as students with ID or students with SEBD.

Given the many student characteristics applicable to students with ID or students with SEBD that appear to be disadvantageous in acquiring the acceptance of their peers, it is surprising that some studies have found that students with ID or SEBD have a positive view of their social acceptance and social self-concept. For example, in a study by Koster et al. (2010), students with ID or SEBD in regular education did not differ in their social self-concept compared to their typically developing (TD) peers. These positive social self-concept scores were reported by students, despite the fact that the same study showed these students had fewer friendships than their TD peers and were less accepted by their peers. Similar findings were found in other studies that investigated the social position of students with ID or SEBD in relation to their perceived social acceptance (e.g., Avramidis, 2013; Pijl and Frostad, 2010).

As stated, peer acceptance is important for the development of students and becomes even more meaningful for students during adolescence, a crucial developmental period (LaFontana and Cillessen, 2002; Rubin et al., 2006). The acceptance of peers also plays an important role in implementing inclusive education successfully (Norwich, 2008; United Nations, 2006, 2015). Though more students with ID or SEBD are educated in inclusive educational settings, little research has focused on peer acceptance in inclusive secondary educational settings to date, and not much is known about the peer acceptance of students with or without a disability educated in an inclusive secondary educational setting. Therefore, it is important to determine which variables hinder or foster peer acceptance amongst students in inclusive educational settings. The aim of this study is to explore the relationship between peer acceptance and the predicting variables on both the individual (i.e., behavioural difficulties and social skills) and the peer level (i.e., prosocial behaviour, aggression, popularity and academic achievement) for students with ID, students with SEBD and their typically developing peers educated in an inclusive secondary educational setting. Since these students all have

different peer compositions, it may be of interest to distinguish between the role of predictors residing within an individual student and the influence of predicting variables determined by their peers.

Methods

Design and setting

A cross-sectional study was conducted in an inclusive secondary school setting in the Netherlands. The educational system in the Netherlands has traditionally been highly diversified, with many distinct types of education, each focusing on specific student populations. In the inclusive secondary school setting in the current study, four different schools are integrated into the same schooling complex. Each school is assigned a section of the schooling complex. Students with and without a disability share communal areas, and whenever possible, students from different schools are educated together, thereby creating the opportunity for students of all four schools to interact with each other. Two of the four schools are considered to be regular school settings for secondary education (RSE), one of which is tailored toward pre-vocational education (PVE). The other two school settings are both considered special secondary education schools. The first special school focuses specifically on students with social-emotional and behavioural difficulties (SEBD) and the second special school educates solely students with an intellectual disability (ID). Since each of the four schools tailors to a specific student group, the term student group will be used throughout this study for convenience reasons.

Participants

All students of the secondary school setting were included in the current study, with the exception of students in RSE who were in their final grade, due to practical considerations. This resulted in a total of $N = 344$ students who participated in the study across all four groups of students. A summary of the student characteristics is presented in Table 1. The group of RSE students was the largest group and these students were on average 1 year younger than students in the other groups. The group of students with SEBD contained the largest percentage of boys, closely followed by the group of PVE students, whereas the largest percentage of girls resided in the RSE student group. In each group of students, the number of participating classes ranged from six classes to 22 classes, with an average classroom size of 18.23 ($SD = 4.11$).

Variables and instruments

Peer level variables

Peer acceptance, popularity, academic achievement, prosocial behaviour and aggression were all measured using an unlimited peer nomination procedure. This sociometric approach is well-known and commonly used to measure peer relationships. Studies

TABLE 1 Characteristics of the four groups and participants.

Student group	Participant and group characteristics			
	Number of students (<i>n</i>)	Boys (%)	Mean age (<i>SD</i>)	Number of classes (<i>n</i>)
RSE students	199	54.7	14.2 (1.0)	22
PVE students	49	73.5	14.8 (1.5)	9
Students with SEBD	28	75.0	15.1 (1.4)	9
Students with ID	68	69.1	15.9 (2.1)	6
Total	344	62.2	14.9 (1.4)	46

RSE, regular secondary education; PVE, pre-vocational education; SEBD, social-emotional behavioural difficulties; ID, intellectual disability.

have shown that both the reliability and validity of this method are high (Cillessen, 2009; Cillessen and Marks, 2017; Terry, 2000). Students were given an alphabetically ordered overview of their classmates from which they could select their peers for each variable.

Peer acceptance

For *peer acceptance*, students were asked about their friends within the classroom. Students could name an unlimited number of friends within their classroom. Whereas friendship was defined by reciprocal nominations in peer nomination research, acceptance was defined by the number of incoming nominations a student receives (indegrees). Raw nomination scores for acceptance, as well as the scores corrected for classroom size, were calculated. Students in larger classrooms may receive more acceptance nominations compared to those in smaller classrooms, as there are more classmates who can nominate them. A similar effect may occur in smaller classrooms, where students may receive fewer acceptance nominations due to the smaller number of classmates. To account for the influence of classroom size, a statistical correction was applied, eliminating classroom size-related bias in the analyses and interpretation of the results.

Prosocial behaviour and aggression

Prosocial behaviour was measured by asking students which classmates were most likely to help others, while *aggression* was measured by nominating students within the class who displayed either verbal or physical aggression. For each of these variables, the peer nominations, corrected for the size of the classroom, were used as an individual score for each student.

Popularity and academic achievement

The *popularity* of students was assessed by asking students which students were seen as most popular (positive popularity) and which students were perceived as least popular (negative popularity) in their class. By subtracting the negative popularity score from the positive popularity score, a difference score indicating overall popularity was determined for each student. Similarly, by asking students which classmates were gaining the highest (positive academic achievement) and lowest grades

(negative academic achievement), the difference score yielded a perceived *academic achievement* score for each individual student.

Individual level variables

The variables on the individual level are measured using teacher reported data. The reason for collecting the data from teachers was twofold. Firstly, this approach served to reduce the burden on students during the data collection process. Furthermore, it was acknowledged that not all students may be capable of accurately assessing themselves across the various variables. The use of teacher-reported data therefore aimed to mitigate potential biases resulting from students' difficulties with self-assessment.

Behavioural problems

Behavioural problems of students were measured using the Dutch version of the Teacher's Report Form (TRF) (Achenbach and Rescorla, 2001; Verhulst and Van der Ende, 2013). The TRF is a teacher-report questionnaire used to indicate the occurrence of various behavioural problems in students aged 6–18 on six different subscales. Each item of the TRF can be scored on a three-point Likert scale ranging from 0 (not true) to 2 (very true or often true). In the current study, the subscales of the TRF were combined to reflect the presence of *internalising problems* (subscales affective problems and anxiety problems), *externalising problems* (subscales oppositional defiant problems and conduct problems) and *ADHD problems* (subscale attention-deficit/hyperactivity problems). The subscale somatic problems was not included in this study, since this subscale was determined not to be appropriate for the overarching behaviour problem categories. The total raw scores for behavioural problems, as well as the raw scores for internalising problems, externalising problems, and ADHD problems were calculated. In the current sample, the Cronbach's alpha for the questionnaire as a whole was found to be high ($\alpha = 0.89$), which indicated good estimated reliability. The subscales internalising problems ($\alpha = 0.73$), externalising problems ($\alpha = 0.88$) and ADHD problems ($\alpha = 0.93$) also exhibited high values of Cronbach's alpha.

Social skills

To assess the social skills of students, the Social Competence Observation List (SCOL) was used. The SCOL is a Dutch questionnaire used in primary and secondary (special) education to measure social competence in students by their teachers. Eight different subscales are identified within the SCOL, namely collaboration, task performance, presenting, making choices, sharing experiences, prosocial behaviour, standing up for oneself and conflict management. The latter four subscales were included in this study, since these subscales focused on individual social skills in relation to peers. All 14 items were scored on a five-point Likert scale ranging from 1 (never) to 5 (often) to indicate how much of a specific social skill is displayed by a student. The estimated reliability of the SCOL for the current sample was found to be high ($\alpha = 0.91$).

Student group

The four different school types that were included in the study each cater to a specific student population. Therefore, student group is included in the study as a variable to distinguish the

TABLE 2 Means and standard deviations of the number of nominations for peer acceptance.

Variables	Student group			
	Students in RSE (<i>n</i> = 199)	Students in PVE (<i>n</i> = 49)	Students with SEBD (<i>n</i> = 28)	Students with ID (<i>n</i> = 68)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)
Number of indegrees	4.31 (2.50)	2.86 (1.44)	2.04 (1.29)	4.01 (1.83)
Number of indegrees corrected for class size	0.280 (0.167)	0.385 (0.185)	0.336 (0.236)	0.391 (0.315)
Number of outdegrees	4.17 (3.00)	2.86 (1.72)	2.04 (1.37)	4.01 (3.21)
Number of outdegrees corrected for class size	0.273 (0.197)	0.385 (0.235)	0.336 (0.233)	0.391 (0.193)

different groups of students, namely students in RSE, students in PVE, students with SEBD and students with ID.

Procedure

Informed consent was obtained from all parents and students included in the study. Based on the teacher's assessment, six students with ID were not approached for participation in the study. This pertained to students with intellectual disabilities of such severity that a full understanding of informed consent could not reasonably be ensured. All other students with ID were approached to participate in the study. Ethical approval was obtained from the Ethics Committee of the Department of Pedagogical & Educational Sciences of the University of Groningen.

Students filled in the sociometric questionnaire digitally during school hours, supervised by the principal researcher (first author), a research assistant and on occasion the classroom teacher. Students with ID received individual support as needed, whereas students in RSE, PVE and students with SEBD completed the questionnaire collectively. The questionnaires for teachers were sent digitally and could be filled in at any time within a given timeframe.

Data analysis

Using UCINET 6 (Borgatti et al., 2002), the sociometric nominations were analysed before continuing with the main analyses. In accordance with guidelines for using nomination data, a 70% response rate was used as a cut-off point (e.g., Cillessen, 2009).

Descriptive statistics such as means and standard deviations were calculated to gain a better understanding of the data.

Multilevel modelling using MLwiN 3 (Charlton et al., 2023) with two levels (i.e., classroom level and individual level) was used in the analyses to answer the research questions. A random intercept model was constructed to determine whether or not there are differences in the relationship between the independent variables and peer acceptance for the four groups of students. Dummy coding was used to investigate student group as a categorical variable, whereas behavioural difficulties, social skills, prosocial behaviour, aggression, popularity and academic achievement were added separately as predictor variables, investigating the effects of each variable independently. All

predictor variables were centred at the sample mean. Interaction terms between group of student (dummy coded) and the predictor variables were added as predictors to the model to study moderation effects. By using a different reference group (i.e., students in RSE, students in PVE, students with ID or students with SEBD), different variations of the models were investigated in relation to the predictor variables. This resulted in a great number of MLA models. The results of all MLA models will be addressed in the results section, however, due to practical considerations, only the significant statistics will be reported, and only the statistical MLA models for peer acceptance with aggression and popularity as predictors and RSE students as a reference group will be shown in tables.

Results

Peer acceptance

Descriptive statistics of the number of incoming (indegrees) and outgoing (outdegrees) nominations for peer acceptance for all four groups of students are presented in Table 2. Students in RSE and students with ID on average reported the highest numbers of indegrees and outdegrees, meaning they both gave and received the most nominations of peer acceptance. However, when the nominations were corrected for the number of students in a classroom, the results showed that students in RSE had the lowest peer acceptance scores toward the peers in their classroom. After correction for class size, students in RSE had the lowest indegree scores and the lowest outdegree scores compared to the other three groups of students.

Predictors of peer acceptance on the individual level

Missing data

The exploratory data analysis of the predictors on the individual level revealed missing data for both predictors on the individual level. The missing data was considered random, based on the non-response of random teachers across all student groups. The missing data did not prohibit the planned analyses for social skills as a predictor for peer acceptance. However, the amount of missing data for the predictor behavioural problems was such that further analyses differentiating the different types of

TABLE 3 Overview of the available and missing data for behaviour problems and social skills.

Student group	Data				
	Number of students (n)	Available data for behavioural problems (n)	Missing data for behavioural problems (n)	Available data for social skills (n)	Missing data for social skills (n)
RSE students	199	28	171	91	108
PVE students	49	28	21	49	0
Students with SEBD	28	19	9	24	4
Students with ID	68	47	21	65	3
Total	344	122	222	229	115

TABLE 4 Means and standard deviations of the predictor variables for peer acceptance for the four groups of students.

Student group	Predictor variables for peer acceptance					
	Individual level*		Peer level*			
	Behavioural difficulties	Social skills	Prosocial behaviour	Aggression	Popularity	Academic achievement
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
RSE students	10.10 (7.05)	32.10 (9.31)	0.22 (0.16)	0.29 (0.23)	0.23 (0.21)	0.02 (0.34)
Boys	9.95 (6.71)	30.83 (9.47)	0.21 (0.18)	0.36 (0.24)	0.23 (0.19)	−0.02 (0.38)
Girls	10.88 (9.06)	35.87 (7.80)	0.21 (0.14)	0.20 (0.17)	0.23 (0.23)	0.06 (0.28)
PVE students	12.24 (7.52)	33.10 (7.90)	0.37 (0.25)	0.24 (0.25)	0.28 (0.25)	0.33 (0.48)
Boys	12.12 (7.71)	33.18 (7.89)	0.34 (0.24)	0.29 (0.25)	0.31 (0.24)	0.38 (0.47)
Girls	12.50 (7.43)	32.96 (8.08)	0.45 (0.26)	0.11 (0.19)	0.22 (0.29)	0.18 (0.50)
Students with SEBD	16.02 (11.42)	26.71 (8.84)	0.31 (0.24)	0.26 (0.26)	0.33 (0.31)	0.03 (0.41)
Boys	16.84 (11.86)	25.78 (8.90)	0.33 (0.24)	0.31 (0.27)	0.31 (0.30)	0.01 (0.44)
Girls	10.00 (4.58)	32.14 (6.67)	0.23 (0.23)	0.10 (0.16)	0.40 (0.38)	0.10 (0.32)
Students with ID	15.60 (12.07)	30.43 (7.79)	0.31 (0.24)	0.18 (0.21)	0.24 (0.23)	0.20 (0.40)
Boys	16.86 (13.72)	29.69 (8.62)	0.28 (0.24)	0.21 (0.23)	0.26 (0.24)	0.21 (0.41)
Girls	13.56 (8.77)	32.10 (5.28)	0.37 (0.23)	0.11 (0.14)	0.21 (0.22)	0.20 (0.39)

*Mean scores corrected for classroom size; RSE, regular secondary education; PVE, prevocational education; SEBD, social-emotional and behavioural difficulties; ID, intellectual disability.

behavioural problems as predictors (i.e., externalising, internalising and ADHD problems) were not possible. Therefore, in the analyses, only the total raw scores for behavioural problems were used. In Table 3 an overview of the available and missing data is presented.

Behavioural problems

Table 4 presents the means and standard deviations of the predictor variables on the individual level. On average, teachers reported higher *behavioural difficulties* scores in students in special education compared to students in mainstream education. The standard deviation of students in special education was the largest, indicating that there was a broader range in the reported behavioural difficulties observed by teachers in their students.

The MLA model for behavioural problems with SEBD as a reference group had a significant main effect for behavioural difficulties ($\beta = 0.011, p = 0.028$) and a negative interaction effect

of behavioural difficulties and being a student educated in PVE ($\beta = -0.015, p = 0.032$). The latter indicates that students in PVE with more behavioural difficulties were on average less accepted than students with SEBD.

Social skills

The mean scores presented in Table 4 indicate that students with SEBD had on average lower social skills scores compared to the other three groups of students. The lower mean score on social skills for students with SEBD could largely be attributed to a lower mean score for boys with SEBD. With the exception of students in PVE, teachers reported girls to have higher social skills scores compared to boys. Furthermore, students with ID did not differ greatly from their peers in regular education in their display of social skills.

No significant effects were found in the models with social skills included as a predictor variable for peer acceptance.

Predictors of peer acceptance on the peer level

Prosocial behaviour

The mean scores in [Table 4](#) show that students in RSE on average had lower prosocial behaviour scores ($M = 0.22$) compared to the other three groups of students.

The MLA results show a main effect of prosocial behaviour on peer acceptance in the models using students in RSE ($\beta = 0.320$, $p < 0.001$) and PVE ($\beta = 0.200$, $p = 0.048$) as a reference, indicating that students in these groups were more accepted if their peers found them displaying more prosocial behaviour. In the model using RSE students as a reference, a negative interaction effect was found between peer acceptance and belonging to the group of students with SEBD ($\beta = -0.394$, $p = 0.011$). This indicates that students with SEBD who had lower prosocial behaviour scores were less accepted than their peers in the group of students in RSE.

Aggression

The results for aggression, as shown in [Table 4](#), show that students with ID on average had the lowest aggression scores ($M = 0.18$) according to their peers, whereas students in RSE showed on average the highest aggression scores ($M = 0.29$). In all groups, boys were on average perceived as more aggressive than girls by their peers.

The MLA results show a main effect of aggression on peer acceptance in all the models, except for the model using students educated in PVE as a reference. There was a main effect for aggression found in the models using students in RSE ($\beta = 0.164$, $p = 0.002$), students with SEBD ($\beta = 0.399$, $p < 0.001$) and students with ID ($\beta = 0.216$, $p = 0.020$) as a reference. In the model using RSE students as a reference group, presented in [Table 5](#), there was also a positive main effect of belonging to the group of students in PVE ($\beta = 0.104$, $p = 0.034$) or students with ID ($\beta = 0.130$, $p = 0.007$), indicating that students in RSE were on average less accepted by their peers when displaying aggression than their peers in PVE or peers with ID. In the model using students in PVE as a reference an interaction effect was found between aggression and belonging to the group of students in RSE ($\beta = 0.272$, $p = 0.011$), students with SEBD ($\beta = 0.507$, $p < 0.001$) and students with ID ($\beta = 0.324$, $p = 0.014$). This indicates that students in PVE who scored higher on aggression were less accepted than their peers in any of the other groups of students.

Popularity

The mean scores for popularity in [Table 4](#) show that students with SEBD were on average more frequently scored highly on popularity ($M = 0.33$) compared to the other three groups. In the group of students in RSE, no mean differences were found between boys and girls in popularity, whereas girls had on average higher popularity scores in the group of students with SEBD and boys had on average higher popularity scores in the two remaining groups of students.

In all MLA models, a main effect was found for popularity, which means that higher popularity scores were related to higher peer acceptance in students in RSE ($\beta = 0.012$, $p < 0.001$), students in PVE ($\beta = 0.026$, $p = 0.018$), students with SEBD ($\beta = 0.054$, $p < 0.001$) and students with ID ($\beta = 0.042$, $p = 0.003$). The model with students in RSE as a reference group shows an interaction effect for popularity and students with either SEBD ($\beta = 0.043$, $p = 0.002$) or ID ($\beta = 0.030$, $p = 0.002$), meaning that students with SEBD or students with ID who were popular were more accepted than their peers in RSE. The results of the MLA with RSE students as a reference are presented in [Table 5](#).

Academic achievement

The mean scores for perceived academic achievement are shown in [Table 4](#). These indicate that students in RSE and students with SEBD did not on average assess the academic achievements of their peers highly. Boys in RSE had a negative score, indicating that boys were on average more negatively assessed by their peers concerning their academic achievements. In students with PVE the mean difference between genders was the largest, with girls being assessed as lesser academic achievers than boys, on average.

The results of the MLA analyses show a main negative effect of academic achievement in the model using students with SEBD as a reference group ($\beta = -0.149$, $p = 0.044$). In the same model, an interaction effect was found for academic achievement and students with ID ($\beta = 0.173$, $p = 0.045$), indicating students with ID who showed better academic achievements were more accepted by their peers than students with SEBD. In the model using students with ID as a reference group, a main effect was found for students in RSE ($\beta = -0.104$, $p = 0.041$), which means that students with RSE were on average less accepted than their peers with ID.

Discussion

Peer acceptance is an important goal in achieving inclusive education, though not much is known about the factors that contribute to or hinder the acquisition of peer acceptance. Research into predictors of peer acceptance is especially scarce among students with or without disabilities educated in inclusive secondary educational settings. The aim of this study was, therefore to examine predictors on the individual level and the peer level that foster or impede the peer acceptance of four groups of students, two groups of students with and two groups of students without disabilities, in different schools housed in an inclusive secondary educational setting. The results of this study show that most predictors for peer acceptance can be found on the peer level instead of the individual level, and this is evident for both students with and without disabilities. This study found that the perceived level of aggression and popularity by peers are overall the best predictors for peer acceptance across the four groups of students.

The results on the individual level as reported by teachers revealed some interesting findings, most notably that this study found no statistically significant relationship between social skills and peer acceptance for all four groups of students. This is particularly notable given that many researchers have hypothesised that students, in particular students with ID, are often less accepted

TABLE 5 Results for the multilevel models with peer acceptance as the dependent variable and aggression (1) and popularity (2) as predictor variables.

Variables	Model					
	Null model		Model 1 Aggression		Model 2 Popularity	
	β	SD	β	SD	β	SD
Fixed effects						
Intercept	0.343**	0.021	0.285**	0.027	0.296**	0.027
Aggression			0.164**	0.054		
Popularity					0.012**	0.003
PVE			0.104*	0.049	0.081	0.049
SEBD			0.075	0.058	0.011	0.059
ID			0.130**	0.048	0.072	0.048
Aggression*PVE			−0.272*	0.107		
Aggression*SEBD			0.235	0.125		
Aggression*ID			0.051	0.108		
Popularity*PVE					0.014	0.011
Popularity*SEBD					0.043**	0.014
Popularity*ID					0.030**	0.010
Random effects						
Level 2: class	0.011**	0.003	0.007*	0.003	0.008**	0.003
Level 1: student	0.024**	0.002	0.022**	0.002	0.021**	0.002
2-log-likelihood	−255.601		−287.200		−313.618	

Students in RSE form the reference group; * $p < 0.05$, ** $p < 0.01$.

because of their underdeveloped social skills. It is often thought that students with SEN, and specifically students with ID, have less age-appropriate social skills, which leads them to have a less favourable social position or to experience peer rejection. As a result, they have diminished social interactions and therefore lack practice in enhancing or expanding their social skills, which subsequently weakens their social position even further (Frostad and Pijl, 2007; Schaffer, 1996). Despite being often hypothesised as related, studies focusing on social skills as a predictor of peer acceptance are scarce. The studies that do investigate this relationship have found that there is no relationship between peer acceptance and social skills for students with ID (Frostad and Pijl, 2007; Garrote, 2017) or found only a specific aspect of social skills (i.e., empathy) to be related to peer acceptance in students with SEBD (Frostad and Pijl, 2007). The current study equally did not find support for social skills as an explanatory variable for peer acceptance, further questioning the theory that insufficient social skills are the primary reason for the lack of peer acceptance in students with a disability.

Besides the lack of significant results demonstrating a relationship between peer acceptance and social skills, the results on the individual level further revealed that behavioural problems have a limited predictive value for peer acceptance. In students with PVE, more behavioural problems are related to lower peer acceptance, but this relationship was not found for the remaining student groups. This is surprising, as many studies have found that behavioural problems are related to peer rejection, especially in

students with SEBD (de Swart et al., 2022). The lack of a significant relationship between behavioural problems and peer acceptance in students with SEBD may be attributed to the fact that, in this study, peer acceptance was evaluated by peers with similar behavioural characteristics. All students in the SEBD group were personally familiar with behavioural difficulties (i.e., were referred to special education due to behavioural difficulties), therefore, these students might be more accepting toward their peers with behavioural problems. In addition, according to the person-group similarity model, it is possible that the classroom norms in classrooms with students with SEBD might be more favourable with respect to the display of behavioural problems compared to classrooms without students with SEBD (Wright et al., 1986), though there is also evidence that this might not apply to all types of behaviour in special education settings (de Swart et al., 2022).

On the peer level, the findings showed that aggression is a predominant predictor for peer acceptance for RSE, SEBD and ID students in this study. Higher levels of aggression are related to higher peer acceptance for all three student groups. Several studies have found an adverse relationship between peer acceptance and aggression (Avramidis, 2010; Cillessen and Mayeux, 2004; Newcomb et al., 1993). The contradictory findings in the current study might be explained by the peer norms held within the classrooms. Peer classroom norms reflect the expected and accepted behaviour within a classroom, and, in turn, determine whether or not more aggressive behaviour is perceived as accepted behaviour (Shaw, 1981). It is possible that

in this study, the peer norms for aggressive behaviour within the classroom were more positive, resulting in peer acceptance for students demonstrating more aggressive behaviours. However, the results do further emphasise the challenge of realising inclusive education, in particular for students with SEBD, since they face continuous difficulties in acquiring peer acceptance due to their more frequently present aggressive behaviours. Furthermore, it emphasises the importance of taking the context of classrooms and school settings into account.

Surprisingly, prosocial behaviour was found to be less predictive of peer acceptance than aggression. This is remarkable, since developmental theories state that both aggression and prosocial behaviour are behaviours that are deployed for similar reasons and are viewed as competitive strategies that are both instrumental in forming peer relations (i.e., friendships or bullying) (Hawley, 2007; Hawley and Bower, 2018). Prosocial behaviour is even found to be used to counterbalance aggressive behaviours (Hawley and Vaughn, 2003).

The current study identified popularity as the second most important predictor of peer acceptance. Popularity is often associated with either prosocial behaviour (LaFontana and Cillessen, 2002) or aggression (Cillessen and Marks, 2011), therefore, it is possible that the main predictors of peer acceptance found in this study (i.e., aggression and popularity) are interconnected. Perceived academic achievement proved not to be a strong predictor of peer acceptance in this study. Academic achievement is often linked to popularity, and popular adolescents are often more motivated for school (Wentzel, 2005; Wentzel and Watkins, 2019). The results of this study seem to indicate that the relationship between popularity, academic achievement and peer acceptance might be more complex, and perceived academic achievement is not a direct predictor for peer acceptance.

The findings of this study revealed that predictors for peer acceptance are mainly found on the peer level, not on the individual level. These findings underline the important role of peers in not only peer acceptance, but also by extension, the context of inclusive education. Without peer acceptance, friendships cannot be formed. Koster et al. (2009) defined peer acceptance and friendships as two of the four key aspects of social participation, and social participation is closely related to inclusive education (Bottrell and Goodwin, 2011). This has, therefore, implications for practice, since interventions aimed at increasing peer acceptance are often solely targeting individual students (e.g., social skills interventions). However, when the peer perception of this student remains unchanged, peer acceptance will be difficult to achieve. The findings of this study demonstrate that within interventions to increase peer acceptance, the peer perception should be given a more prominent role in order to foster more peer acceptance amongst students.

It is recommended that teachers implement classroom interventions aimed at promoting prosocial behaviour among students. By specifically fostering prosocial behaviour, peer acceptance can be enhanced in two ways. Firstly, through the direct positive effects of prosocial behaviour itself, and also since interventions aimed at prosocial behaviour often result in a decline of aggression with moderate to high effectiveness levels (e.g., Mesurado et al., 2019). Secondly, interventions aimed at promoting prosocial behaviour will influence prevailing peer norms within the

classroom. As prosocial behaviour becomes more positively valued by students than aggressive behaviour, this shift in peer norms is also expected to contribute to a reduction in aggressive behaviour. Both the increase in prosocial behaviour, decrease in aggressive behaviour and shifting peer norms may thus positively impact peer acceptance among students.

Limitations and future research

The present study aimed to increase the understanding of predicting variables to achieve peer acceptance among students with and without a disability in different inclusive secondary educational settings. Though new insights were gained, there are also several limitations to this study.

Firstly, the results of the current study researched predictors for peer acceptance among students educated in separate secondary educational settings. These are valuable results, but they are currently limited to predictors fostering and hindering peer acceptance *within* a student group. However, these results do contribute to a greater understanding of peer acceptance predictors within groups in an inclusive setting, which has been proven difficult (e.g., Garrote et al., 2020). In addition to being limited to in-group predictors, no causality of the predictors of peer acceptance can be inferred, due to the cross-sectional design of the current study (Gerring, 2005). In light of the transition toward more inclusive education, it is recommended for future research to build upon the current study by researching the predictors for peer acceptance *between* groups of students, and determining the causality between the predictors on the individual level and the peer level in relationship to peer acceptance by adopting a longitudinal design.

A second methodological limitation was that the study was unable to investigate the relationship between peer acceptance and specific behavioural problems. Although the instrument used to assess students' behavioural problems (i.e., the TRF) distinguishes between externalising, internalising, and ADHD problems, missing data prevented a reliable analysis of the relationship between these different manifestations of behavioural problems and peer acceptance. Research suggests that certain behavioural problems, in particular more externalising problems, might result in lower peer acceptance scores than more internalising problems (de Swart et al., 2022). Unfortunately, it was not possible to discern the relationship between specific behavioural problems and peer acceptance within the current study.

In the current study, both teacher and peer reports were used. Some research suggests that teacher perceptions and teacher approach of students can influence the perceptions of peers (Chang et al., 2007; Douma, 2024). Therefore, it would be interesting for future research to investigate the interrelationship between teacher and peer ratings across different groups of students.

Peer level factors as predictors of peer acceptance

This study aimed to answer research questions about predictors that could help explain peer acceptance of students in an inclusive

secondary school setting. Although the study revealed several new insights into predictors on the individual and peer level related to peer acceptance, the main finding might be that peers are essential in the social-emotional development of individuals. The way peers view and perceive the characteristics and social position of an individual greatly impacts whether or not a student will be accepted within school. This is equal for students with or without a disability alike. Many interventions to improve peer acceptance focus on the individual (e.g., social skills training). The findings of this study indicate that not all factors contributing to peer acceptance reside solely within the individual student, but are to a large extent embedded in the surrounding social context—particularly within the peer group. Accordingly, efforts to promote peer acceptance should place greater emphasis on the role of peers, who ultimately grant that acceptance. To this end, teachers play a vital role in fostering positive peer relationships and supporting peer acceptance within the inclusive classroom (Rodkin and Ryan, 2012).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ethics Committee of the Department of Pedagogical & Educational Sciences of the University of Groningen. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

References

- Achenbach, T. M., and Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.
- Avramidis, E. (2010). Social relationships of pupils with special educational needs in the mainstream primary class: peer group membership and peer-assessed social behaviour. *Eur. J. Spec. Needs Educ.* 25, 413–429. doi: 10.1080/08856257.2010.513550
- Avramidis, E. (2013). Self-concept, social position and social participation of pupils with SEN in mainstream primary schools. *Res. Papers Educ.* 28, 421–442. doi: 10.1080/02671522.2012.673006
- Bagwell, C. L., and Bukowski, W. M. (2018). "Friendship in childhood and adolescence: features, effects, and processes," in *Handbook of Peer Interactions, Relationships, and Groups*, eds. W. M. Bukowski, B. Laursen, & K. H. Rubin (New York, NY: The Guilford Press), 371–390.
- Bagwell, C. L., Schmidt, M. E., Newcomb, A. F., and Bukowski, W. M. (2001). Friendship and peer rejection as predictors of adult adjustment. *New Dir. Child Adolesc. Dev.* 91, 25–49. doi: 10.1002/cad.4
- Borgatti, S. P., Everett, M. G., and Freeman, L. C. (2002). *UCINET 6 for Windows: Software for Social Network Analysis*. Lexington, KY: Analytic Technologies.
- Bottrell, D., and Goodwin, S. (2011). *Schools, Communities and Social Inclusion*. London: Palgrave Macmillan.
- Chang, L., Liu, H., Fung, K. Y., Wang, Y., Wen, Z., Li, H., et al. (2007). The mediating and moderating effects of teacher preference on the relations between students' social behaviors and peer acceptance. *Merrill Palmer Q.* 53, 603–630. doi: 10.1353/mpq.2008.0006
- Charlton, C., Rasbash, J., Browne, W. J., Healy, M., and Cameron, B. (2023). *MLwiN Version 3.07*. Bristol: Centre for Multilevel Modelling, University of Bristol.
- Cillessen, A. H. N. (2009). "Sociometric methods," in *Handbook of Peer Interactions, Relationships, and Groups* (New York, NY: The Guilford Press), 82–99.
- Cillessen, A. H. N., and Marks, P. E. L. (2011). "Conceptualizing and measuring popularity," in *Popularity in the Peer System*, eds. A. H. N. Cillessen, D. Schwartz, and L. Mayeux (New York, NY: Guilford Press), 25–56.
- Cillessen, A. H. N., and Marks, P. E. L. (2017). Methodological choices in peer nomination research. *New Dir. Child Adolesc. Dev.* 2017, 21–44. doi: 10.1002/cad.20206
- Cillessen, A. H. N., and Mayeux, L. (2004). "Sociometric status and peer group behavior: Previous findings and current directions," in *Children's peer relations: From development to intervention* (Washington, DC: American Psychological Association), 3–20.
- Cillessen, A. H. N., and Rose, A. J. (2005). Understanding popularity in the peer system. *Curr. Dir. Psychol. Sci.* 14, 102–105. doi: 10.1111/j.0963-7214.2005.00343.x
- de Boer, A., and Pijl, S. J. (2016). The acceptance and rejection of peers with ADHD and ASD in general secondary education. *J. Educ. Res.* 109, 325–332. doi: 10.1080/00220671.2014.958812
- de Monchy, M., Pijl, S. J., and Zandberg, T. (2007). Discrepancies in judging social inclusion and bullying of pupils with behaviour problems. *Eur. J. Spec. Needs Educ.* 19, 317–330. doi: 10.1080/0885625042000262488
- de Swart, F., Scholte, R. H. J., Delsing, M. J. M. H., van Efferen, E., der Stege, H., van, Nelen, W., et al. (2022). Behavioral classroom norms in special education:

Author contributions

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- Associations with peer acceptance and rejection. *Int. J. Behav. Dev.* 46, 382–389. doi: 10.1177/0165025419885028
- Dijkstra, J. K., Cillessen, A. H. N., and Borch, C. (2013). Popularity and adolescent friendship networks: selection and influence dynamics. *Dev. Psychol.* 49, 1242–1252. doi: 10.1037/a0030098
- Douma, I. (2024). *Me Myself and I: Explaining the Self-Concept of Students in Mainstream and Special Education Through the Eyes of Their Peers* (doctoral dissertation). University of Groningen, Groningen, Netherlands. doi: 10.33612/diss.872395709
- Douma, I., de Boer, A., Minnaert, A., and Grietens, H. (2022). The I of students with ID or SEBD: A systematic literature review of the self-concept of students with ID or SEBD. *Educ. Res. Rev.* 36, 100449. doi: 10.1016/j.edurev.2022.100449
- Eisenberg, N., Eggum-Wilkens, N. D., and Spinrad, T. L. (2015). “The development of prosocial behavior,” in *The Oxford Handbook of Prosocial Behavior* (Oxford: Oxford University Press), 114–136.
- Eriksson, L., and Granlund, M. (2004). Conceptions of participation in students with disabilities and persons in their close environment. *J. Dev. Phys. Disabil.* 16, 229–245. doi: 10.1023/B:JODD.0000032299.31588.f0
- Flook, L., Repetti, R. L., and Ullman, J. B. (2005). Classroom social experiences as predictors of academic performance. *Dev. Psychol.* 41, 319–327. doi: 10.1037/0012-1649.41.2.319
- Frostad, P., and Pijl, S. J. (2007). Does being friendly help in making friends? The relation between the social position and social skills of pupils with special needs in mainstream education. *Eur. J. Special Needs Educ.* 22, 15–30. doi: 10.1080/08856250601082224
- Gamboa, P., Freire, S., Anica, A., João Mogarro, M., Fátima Moreira, M., and Vaz da Silva, F. (2021). Correlates of rejection by the peer group: a study comparing students with and without SEN. *Int. J. Inclusive Educ.* 1–21. doi: 10.1080/13603116.2021.1941314
- Garrote, A. (2017). Relationship between the social participation and social skills of pupils with an intellectual disability: A study in inclusive classrooms. *Frontline Learn. Res.* 5, 1–15. doi: 10.14786/flr.v5i1.266
- Garrote, A., Felder, F., Krähenmann, H., Schnepel, S., Sermier Dessemontet, R., and Moser Opitz, E. (2020). Social acceptance in inclusive classrooms: the role of teacher attitudes toward inclusion and classroom management. *Front. Educ.* 5:582873. doi: 10.3389/educ.2020.582873
- Gerring, J. (2005). Causation: A unified framework for the social sciences. *J. Theor. Polit.* 17, 163–198. doi: 10.1177/0951629805050859
- Handel, G. (2011). “Sociological perspectives on social development,” in *The Wiley-Blackwell Handbook of Childhood Social Development*, eds. P. K. Smith and C. H. Hart (Wiley-Blackwell), 119–138. doi: 10.1002/9781444390933.CH7
- Hawley, P. H. (2007). “Social dominance in childhood and adolescence: Why social competence and aggression may go hand in hand,” in *Aggression and Adaptation: The Bright Side to Bad Behavior* (Mahwah: Lawrence Erlbaum Associates Publishers), 1–29.
- Hawley, P. H., and Bower, A. R. (2018). “Evolution and peer relations: Considering the functional roles of aggression and prosociality,” in *Handbook of Peer Interactions, Relationships, and Groups*, 2nd Edn, eds. W. M. Bukowski, B. Laursen, and K. H. Rubin (The Guilford Press), 106–122.
- Hawley, P. H., and Vaughn, B. E. (2003). Aggression and adaptive functioning: The bright side to bad behavior. *Merrill Palmer Q.* 49, 239–242. doi: 10.1353/mpq.2003.0012
- Jennings, P. A., and Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Rev. Educ. Res.* 79, 491–525. doi: 10.3102/0034654308325693
- Killen, M., and Rutland, A. (2011). “Children and social exclusion: Morality, prejudice, and group identity,” in *Children and Social Exclusion: Morality, Prejudice, and Group Identity* (Hoboken, NJ: Wiley-Blackwell).
- Knickenberg, M., Zurbriggen, L. A., Zurbriggen, C., Venetz, M., Schwab, S., Gebhardt, M., et al. (2020). Assessing dimensions of inclusion from students’ perspective—measurement invariance across students with learning disabilities in different educational settings. *Eur. J. Spec. Needs Educ.* 35, 287–302. doi: 10.1080/08856257.2019.1646958
- Koster, M., Nakken, H., Pijl, S. J., and Van Houten, E. (2009). Being part of the peer group: A literature study focusing on the social dimension of inclusion in education. *Int. J. Inclusive Educ.* 13, 117–140. doi: 10.1080/13603110701284680
- Koster, M., Pijl, S. J., Nakken, H., and Van Houten, E. (2010). Social participation of students with special needs in regular primary education in The Netherlands. *Int. J. Disabil. Dev. Educ.* 57, 59–75. doi: 10.1080/10349120903537905
- Ladd, G. W., Herald-Brown, S. L., and Reiser, M. (2008). Does chronic classroom peer rejection predict the development of children’s classroom participation during the grade school years? *Child Dev.* 79, 1001–1015. doi: 10.1111/j.1467-8624.2008.01172.x
- Ladd, G. W., Kochenderfer-Ladd, B., Visconti, K. J., and Ettekal, I. (2012). “Classroom peer relations and children’s social and scholastic development: risk factors and resources,” in *Peer Relationships and Adjustment at School*, 11–49.
- Ladd, G. W., and Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children’s psychological adjustment problems. *Child Dev.* 74, 1344–1367. doi: 10.1111/1467-8624.00611
- LaFontana, K. M., and Cillessen, A. H. N. (2002). Children’s perceptions of popular and unpopular peers: a multimethod assessment. *Dev. Psychol.* 38, 635–647. doi: 10.1037/0012-1649.38.5.635
- Lahelma, E. (2002). School is for meeting friends: secondary school as lived and remembered. *Br. J. Sociol. Educ.* 23, 367–381. doi: 10.1080/0142569022000015418
- Laird, R. D., Jordan, K. Y., Dodge, K. A., Pettit, G. S., and Bates, J. E. (2001). Peer rejection in childhood, involvement with antisocial peers in early adolescence, and the development of externalizing behavior problems. *Dev. Psychopathol.* 13, 337–354. doi: 10.1017/S0954579401002085
- Mesurado, B., Guerra, P., Richaud, M. C., and Rodriguez, L. M. (2019). “Effectiveness of prosocial behavior interventions: a meta-analysis,” in *Psychiatry and Neuroscience Update* (Cham: Springer International Publishing), 259–271.
- Milledge, S. V., Cortese, S., Thompson, M., McEwan, F., Rolt, M., Meyer, B., et al. (2019). Peer relationships and prosocial behaviour differences across disruptive behaviours. *Eur. Child Adolescent Psychiat.* 28, 781–793. doi: 10.1007/s00787-018-1249-2
- Newcomb, A. F., Bukowski, W. M., and Pattee, L. (1993). Children’s peer relations: a meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychol. Bull.* 113, 99–128. doi: 10.1037/0033-2909.113.1.99
- Norwich, B. (2008). What future for special schools and inclusion? Conceptual and professional perspectives. *Br. J. Special Educ.* 35, 136–143. doi: 10.1111/j.1467-8578.2008.00387.x
- Odom, S. L., Zercher, C., Li, S., Marquart, J. M., Sandall, S., and Brown, W. H. (2006). Social acceptance and rejection of preschool children with disabilities: a mixed-method analysis. *J. Educ. Psychol.* 98, 807–823. doi: 10.1037/0022-0663.98.4.807
- Pijl, S. J., and Frostad, P. (2010). Peer acceptance and self-concept of students with disabilities in regular education. *Eur. J. Spec. Needs Educ.* 25, 93–105. doi: 10.1080/08856250903450947
- Pijl, S. J., Frostad, P., and Flem, A. (2008). The social position of pupils with special needs in regular schools. *Scand. J. Educ. Res.* 52, 387–405. doi: 10.1080/00313830802184558
- Pijl, S. J., Frostad, P., and Mjaavatn, P. E. (2011). Segregation in the classroom: what does it take to be accepted as a friend? *Soc. Psychol. Educ.* 14, 41–55. doi: 10.1007/s11218-010-9135-x
- Rodkin, P. C., and Ryan, A. M. (2012). “Child and adolescent peer relations in educational context,” in *APA Educational Psychology Handbook, Vol 2: Individual Differences and Cultural and Contextual Factors*, eds. K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, and M. Zeidner (Washington, DC: American Psychological Association), 363–389.
- Rubin, K. H., Bukowski, W. M., and Parker, J. G. (2006). “Peer interactions, relationships, and groups,” in *Handbook of Child Psychology: Social, Emotional, and Personality Development*, N. Eisenberg (Hoboken, NJ: John Wiley & Sons, Inc), 571–645.
- Rubin, K. H., Coplan, R., Chen, X., Bowker, J. C., McDonald, K., and Heverly-Fitt, S. (2015). “Peer relationships in childhood,” in *Developmental Science: An Advanced Textbook*, eds. M. H. Bornstein and M. E. Lamb (London: Psychology Press), 591–649.
- Schaffer, H. R. (1996). *Social Development*. Hoboken, NJ: Blackwell.
- Schoop-Kasteler, N., and Müller, C. M. (2020). Peer relationships of students with intellectual disabilities in special needs classrooms – a systematic review. *J. Res. Special Educ. Needs* 20, 130–145. doi: 10.1111/1471-3802.12471
- Schwab, S., Gebhardt, M., Krammer, M., and Gasteiger-Klicpera, B. (2015). Linking self-rated social inclusion to social behaviour. An empirical study of students with and without special education needs in secondary schools. *Eur. J. Special Needs Educ.* 30, 1–14. doi: 10.1080/08856257.2014.933550
- Shaw, M. (1981). *Group Dynamics* (3rd ed.). New York, NY: McGraw-Hill.
- Terry, R. (2000). Recent advances in measurement theory and the use of sociometric techniques. *New Dir. Child Adolesc. Dev.* 2000, 27–53. doi: 10.1002/cd.2322000805
- UNESCO (1994). *The Salamanca Statement and Framework for Action on Special Needs Education*. Paris: UNESCO.
- UNESCO (2015). *Incheon Declaration: Education 2030 – Towards Inclusive and Equitable Quality Education and Lifelong Learning for All*. UNESCO.
- United Nations (2006). *Convention on the Rights of Persons with Disabilities*. New York, NY: United Nations.
- United Nations (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. New York, NY: United Nations.
- Verhulst, F. C., and Van der Ende, J. (2013). *Handleiding ASEBA-vragenlijsten voor leeftijden 6 t/m 18 jaar: CBCL/6-18, YSR en TRF*. Burlington, VT: ASEBA.

Wagemaker, E., Hofmann, V., and Müller, C. M. (2023). Prosocial behavior in students with intellectual disabilities: Individual level predictors and the role of the classroom peer context. *PLoS ONE* 18:e0281598. doi: 10.1371/journal.pone.0281598

Wentzel, K. R. (2005). "Peer relationships, motivation, and academic performance at school," eds. A. Elliot & C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 279–296). Guilford.

Wentzel, K. R., Jablansky, S., and Scalise, N. R. (2021). Peer social acceptance and academic achievement: a meta-analytic study. *J. Educ. Psychol.* 113, 157–180. doi: 10.1037/edu0000468

Wentzel, K. R., and Watkins, D. E. (2019). Peer relationships and collaborative learning as contexts for academic enablers. *School Psych. Rev.* 31, 366–377. doi: 10.1080/02796015.2002.12086161

Woodhouse, S. S., Dykas, M. J., and Cassidy, J. (2012). Loneliness and peer relations in adolescence. *Social Dev.* 21, 273–293. doi: 10.1111/j.1467-9507.2011.00611.x

Wright, J. C., Giammarino, M., and Parad, H. W. (1986). Social status in small groups: Individual-group similarity and the social "misfit". *J. Personal. Soc. Psychol.* 50, 523–536. doi: 10.1037/0022-3514.50.3.523