SOCIAL PARTICIPATION OF STUDENTS WITH SPECIAL EDUCATIONAL NEEDS IN MAINSTREAM EDUCATION

Edited by
Susanne Schwab, Mirna Nel and Frank Hellmich

Social Participation of Students with Special Educational Needs in Mainstream Education

This book provides deep insight into the social situation of students with different kinds of special needs in various European countries. Research findings concerning students' attitudes towards peers with disabilities, and teachers' feedback on students' social behaviour, are also presented.

Full inclusion of students with special educational needs in mainstream education requires equity in each student's chances for academic and social-emotional development, and their participation in society. In the context of inclusive education, it is important to take students' social participation into consideration. Are students with special educational needs (SEN) accepted by their peers? Do they interact with their peers during breaks and classes? Do they have friends, or do they feel lonely in their class? This book seeks to answer such questions, seeing social participation as a crucial ingredient, as well as an outcome, of inclusive education. This topic is critical because many previous studies show students with SEN having a high risk of social exclusion.

This volume will be of interest to everyone studying special needs education, especially those concerned with future improvement of social participation for all students.

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Susanne Schwab, Mirna Nel and Frank Hellmich

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Chapter 1

Student voices on social exclusion in general primary schools

R. R. de Leeuw, A. A. de Boer and A. E. M. G. Minnaert

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Chapter 2

School segregation and social participation: the case of Norwegian children with physical disabilities

Jon Erik Finnvoll

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Chapter 3

The quality of experience of students with and without special educational needs in everyday life and when relating to peers

Carmen L. A. Zurbruggen, Martin Venetz and Chantal Hinni

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Chapter 7

The impact of social referencing on social acceptance of children with disabilities and migrant background: an experimental study in primary school settings

Christian Huber, Anita Gerullis, Markus Gebhardt and Susanne Schwab

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INTRODUCTION

Social participation of students with special educational needs

The social participation of students with special educational needs (SEN) is currently gaining increasing attention in research. This is reflected in recent events such as the 'Mini-conference on Social Inclusion of Students with Disabilities in General Education' which has been organised by Professors Anke de Boer and Katja Petry in spring 2017 at the University of Groningen (the Netherlands) where many international researchers shared their research on this topic. Furthermore, a special issue on the social and emotional development of students with SEN in inclusive and exclusive settings has also been published in a German-language journal which was guest edited by Miller, Streese, and Schwab (2016). In order to provide an opportunity for larger international exposure to this topic one of the editors, Susanne Schwab, decided to search for an international journal to edit a special issue, specifically on the social participation of students with SEN. Over the last decades, publications focusing on social participation of students with SEN has also grown substantially within the *European Journal of Special Needs Education*. Consequently, the editors of the journal were kind enough to grant a special issue. The editors included Susanne Schwab (Germany), Mirna Nel (South Africa) and Frank Helmich (Germany). Within this special issue, we aimed to highlight the importance of research on social participation of students with SEN, enhance the available literature and encouraged researchers to fill actual gaps in research.

Articles included in this special issue

This issue of the *European Journal of Special Needs Education* contains a collection of six articles submitted for the special issue, with one additional paper which was submitted for publication in a regular issue. The call for papers was disseminated through broad networks, such as the participants of the 'Mini-conference on Social Inclusion of Students with Disabilities in General Education' mentioned in the introduction, the Education Association for Research on Learning and Instruction (EARLI) Special Interest Group (SIG) 15, as well as the European Education Research Association (EERA) Network 4 members. As a result, we received abstract contributions from different European countries which were all original empirical studies. After a thorough blind review process of the abstracts, ascertaining that the articles were relevant to the theme of the special issue, and also adhere to the journal's requirements, invitations were sent out to the selected authors to submit full articles. All of these submitted articles were then double-blind peer reviewed and seven were finally accepted.

The first four papers focus on the actual situation of the social participation (operationalised within different subthemes of social participation) of students with different kinds of special needs and disabilities. The fifth study, addressed outcomes of low social participation. And the last two papers of our special issue contribute to possible intervention strategies promoting students with SEN's social participation. Both quantitative as well as qualitative approaches have been used in these studies.

In the first paper, Renske de Leeuw, Anke de Boer and Alexander Minnaert used explorative research to listen to the voices of 10–13 years old students with social, emotional and behavioural

difficulties (SEBD) who have been victimised and socially excluded and also investigated the approaches they applied and preferred to resolve their social problems. From the findings, it appears that victimisation such as fighting and name calling occurs mostly outside of the classroom in the playground. Students reported that for the most part an adult was nearby. During play time, the larger number of these students were excluded. The approaches used by the students were either verbal or physical aggression and retaliation or distancing approaches such as playing alone. A critical finding of this study was that these students felt they could not go to their teachers for support.

In the next article, Jon Erik Finvold reported that it appears that students with physical disabilities are less likely to participate in different social arenas. He used a relatively large sample of 491 students from 6 to 16 years of age who have physical disabilities as a result of cerebral palsy, spina bifida and neurological conditions with implications for physical disability. There were 44% of these students attending regular classroom education, 20% spending less than half their time in regular classrooms and 14% attending special schools. The aim of this study was to explore conditions that limit participation, and specifically how school segregation practices affect participation in after-school activities. He found that to varying degrees a large number of these students were extracted from ordinary classroom education and then tutored in smaller groups either with a single teacher or assistant, or attended special schools. From the findings it was evident that both the severity of disability, as well as the parental social background affected the students' chances of attending segregated education. It is strongly suggested in this article that even if not intentional, segregation practices effectively limit or even prevent students with physical disabilities from engaging in a wider social setting.

Carmen Zurbriggen, Martin Venetz and Chantal Hinni, in the third article, explored *the quality of experience of students with and without special educational needs [SEN] in everyday life and when relating to peers*. Their research focused on how these students experience everyday school life vs. leisure time; how much time per week do they spend with peers outside school; and how do they experience those peer contacts. The Experience Sampling Method (ESM) was applied to investigate the daily life of the sample with the common criteria: data sampling in real-life context, in real-time and on repeated occasions. The sample comprised 120 grade 8 (20%) and grade 9 (80%) students from the German-speaking part of Switzerland, with a mean age of 15.8 years. These students included 42 who were diagnosed with SEN, of which 32 were in regular classes and 10 in special classes. The findings suggest that students with SEN do not really spend their everyday life differently than their peers. They interact equally with peers and family and spend a lot of time outside school in media consumption, for example, watching TV and surfing the Internet, or in socialising with friends. Finally, the emotional experience of students with SEN in regular or in separative settings are reported in this study to be best with peers in the leisure time.

The fourth article, authored by Elias Avramidis, Georgia Avgeri and Vasilis Strogilos investigated the four dimensions of social participation of students with Special Educational Needs (SEN) in upper primary regular classes in Greece. These include the perceptions students with SEN hold about the quality of their best friendship, the relationship between their perceptions of social self-concept and their acceptance by peers, as well as their perceptions of best friend quality. A total of 457 students participated in the study of which 45 were diagnosed with having moderate learning difficulties. A multi-method research design was used combining a classic socio-metric technique with systematic observations and self-report psychometric instruments. The findings showed that on the one hand students with SEN are less accepted by their peers, have fewer friends, as well as less social interactions than their peers without SEN. Conversely, it was found that most of the students with SEN managed to form one or two mutual friendships which made them feel positive about themselves and they also held positive perceptions about their best friend.

The article of Johanna Krull, Jürgen Wilbert and Thomas Hennemann deals with the question whether social exclusion by classmates lead to behaviour problems and learning difficulties of students with SEN. The authors present results from a cross-lagged panel analysis. Primary school students in the first- and second grade participated in this study. The results illustrated that behaviour problems and learning difficulties, of these students which were measured in grade 1, significantly influence the social acceptance by peers in the second grade. Furthermore, behaviour problems and learning difficulties in grade 1 are reported to be no significant predictors for higher social rejection in grade 2. The authors consequently provided evidence that behaviour problems and learning difficulties in grade 2 are not influenced by the social acceptance, as well as the social rejection in grade 1.

The article of Katja Petry aimed to investigate whether the ordinary class attitude toward peers with a disability are related to the social participation of students with disabilities. From 62 different schools, 2013 students from the seventh grade, including 86 children with autism spectrum disorder and 61 children with sensory and/or motor limitations were included. Attitudes toward peers with a disability, as well as aspects of social participation like peer acceptance, friendships and peer interactions were assessed using questionnaires. The findings revealed an influence across the aspects of social participation for both, students with autism spectrum disorder and sensory and/or motor limitations compared to regular students. When students with autism spectrum disorder were included in the ordinary class, the peers in this class tend to display more negative attitudes toward them. However, the study highlighted a more positive relation between ordinary class students' attitudes toward the social participation of peers with sensory and/or motor limitations.

Finally, the team of authors Christian Huber, Anita Gerullis, Markus Gebhardt and Susanne Schwab investigated the importance of social referencing with regard to the social acceptance of primary school students with SEN and a migrant background on the basis of an experimental study. In a computer-based study, the researchers studied the question whether social referencing processes influence students' with SEN social acceptance in inclusive, special and regular schools. The results of the study showed that social referencing has an impact on the social acceptance of students with SEN. On the whole, the authors' results underlined the importance of significant others' behaviour for the development of children's social participation.

We want to thank Prof. Seamus Hegarty who gave us the opportunity for this special issue and for all the support with the editing. We hope that this special issue will add important insights into the social participation of students with SEN.

Reference

Miller, S., B. Streese, and S. Schwab, Hrsg. 2016. *Schulische Inklusion (und Exklusion) – Soziale und emotionale Entwicklung von Schülerinnen und Schülern (Empirische Pädagogik, 30 (1), Themenheft)*. Landau: Verlag Empirische Pädagogik.

Susanne Schwab
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Student voices on social exclusion in general primary schools

R. R. de Leeuw, A. A. de Boer and A. E. M. G. Minnaert

ABSTRACT

Advocates of inclusive education argue that the social inclusion of students with special educational needs (SEN) increases when they are educated with typically developing peers. However, research indicates that this is not apparent for all students with SEN. Students with social, emotional and behavioural difficulties (SEBD) are often socially excluded. To understand the situation of these students, their voices should be heard. The aim of the current explorative study was to gain insight into: (1) the experiences of students with SEBD regarding victimisation and social exclusion, and (2) the approaches they applied and preferred resolving social problems. We conducted semi-structured interviews with 28 socially excluded students from grades 5 and 6, attending general ($N = 6$) and segregated special ($N = 21$) primary education. The participants were prompted to talk about their own experiences using hypothetical scenarios. The interviews were analysed using a multi-grounded theory approach. The results show that students preferred different approaches to resolving these social problems than the applied approaches. They would have liked to have seen their peers and teachers to show more initiative. In line with these results, the need to listen to the students' voices are emphasised.

Introduction

The trend for more inclusive education for students with special educational needs (SEN) in general education has meant that such students can now enrol at general schools in their own neighbourhoods. For many European countries, this inclusive education trend started with the signing of agreements such as the Salamanca Statement (UNESCO 1994) and the UNCRPD of 2006. These statements stress that the educational and social needs of all students should be met, which is clearly stated in Article 24 UNCRPD (2006): 'effective individualised support measures are provided in environments that maximise academic and social development, consistent with the goal of full inclusion'. The Netherlands is one of the 174 countries which has signed and ratified the UNCRPD, which recommends that education policies should aim to support students with SEN as appropriately as possible in regular education. The active participants in the development of inclusive education are policy-makers, school boards, teachers and parents, who therefore influence the students' everyday

lives (Woodhead and Faulkner 2000). This practice does not accord with the advice of Rose and Shevlin (2004), who advocate that implementations, interventions and future developments have a better chance of being effective if students' voices are listened to, because the needs and perspectives of the students will be included in the development of their education. This explorative study aims to gain better understanding of experiences of socially excluded primary school students with social and emotional problems and behavioural difficulties (SEBD), and to uncover which social problem-solving approaches these students use and prefer to resolve social exclusion.

Advocates of inclusive education argue that the development and potential of students with SEN improve when they are educated with typically developing (TD) peers because they are afforded more social opportunities. Inclusive education should result in more reciprocal relationships and interactions, greater acceptance and positive self-perceptions among students with SEN and their TD peers (Koster et al. 2009). However, empirical findings indicate that some students with SEN experience difficulties building positive relationships, or face rejection when trying to interact with TD peers, resulting in victimisation and social exclusion (Ladd et al. 2012; Newcomb, Bukowski, and Pattee 1993; Ruijs, Peetsma, and van der Veen 2010). In particular, students with SEBD do not automatically benefit from the social opportunities offered by inclusive education (Chamberlain, Kasari, and Rotheram-Fuller 2007; Guralnick et al. 2007; de Monchy, Pijl, and Zandberg 2004). Students with SEBD tend to report higher rates of social exclusion in terms of fewer friendships and higher rates of loneliness and victimisation (Adderley et al. 2015). Socially excluded students are at higher risk of experiencing increased negative academic and social outcomes, such as early school dropout, criminality and depression (Kauffman and Landrum 2012; Ruijs, Peetsma, and van der Veen 2010; Thompson and Morris 2016). These negative outcomes are diametrically opposed to the intended aims of inclusive education and, as a consequence, act to prevent inclusion from working efficaciously.

The classification of students as having social, emotional problems and behavioural difficulties, either from a clinical diagnosis or from receiving extra educational support, is based on a combination of student behaviours, including socially less accepted approaches to resolving social problems (American Psychiatric Association 2013; Thompson and Morris 2016). In line with the Dutch policy called 'Education that fits' (free translation), the current study used the following operational definition for SEBD: the student has received a formal diagnosis or has been indicated by teachers or the school team as having social, emotional or behavioural difficulties and is receiving extra educational support as a result (*Wet Passend Onderwijs* 2012). Both the internationally accepted classification of students as having SEBD and the Dutch definition imply that SEBD will have a negative impact on students' social inclusion because of their characteristics. This negative impact might explain the lower levels of social inclusion of students with SEBD in the West compared to their peers with SEN (Guralnick et al. 2007). Students with SEBD apply more frequently social problem-solving approaches such as physical and verbal aggression or withdrawal from social situations (Gumpel and Sutherland 2010; Kauffman and Landrum 2012; Newcomb, Bukowski, and Pattee 1993; Rose and Asher 1999). These approaches to resolving social problems are less readily accepted by their TD peers (Newcomb, Bukowski, and Pattee 1993) and are known to affect their relationships with TD peers and teachers negatively (American Psychiatric Association 2013; Cooper and Cefai 2013; Kauffman and Landrum 2012; Newcomb, Bukowski, and Pattee 1993; Thomas 2013). Little is known about what students with SEBD themselves

think about the social problem-solving approaches they apply and whether these students prefer other social problem-solving approaches.

One explanation for this knowledge gap is that the students' voices are often neglected in studies on improving their social inclusion, regardless of whether or not they have SEBD. For example, the measurement of student social inclusion is commonly conducted using teacher reports (e.g. Bauminger and Kasari 2000) or sociometric data (e.g. Frostad and Pijl 2007). Avramidis and colleagues (2017) have pointed out some methodological inconsistencies when assessing social participation. Sociometric data alone only depicts a student's social participation within the classroom, and excludes friendships outside the classroom (Avramidis et al. 2017). Another critical point is that teacher and peer reports are indirect measurements and rarely consider the perspective or voice of the excluded students. Article 12 UNCRC (UNESCO 1994) states that students have the right to express their views on every matter which affects them (Unicef 1989). Although there is an increasing trend towards listening to student voices (e.g. Herz and Haertel 2016), research specifically including students with SEBD and addressing their perspectives on social exclusion continues to be rare (Cefai and Cooper 2010; Michael and Frederickson 2013). Moreover, despite acknowledging that the views of students with SEBD are important, that they are experts on their own situation and can contribute to educational initiatives, policies and research which influence their education (Michael and Frederickson 2013; Rose and Asher 2004; Woodhead and Faulkner 2000), there is a lack of knowledge about the perspectives of primary school students with SEBD. Studies which do include the voices of young students with SEBD focus on the students' perspectives on the impact of inclusive education (Adderley et al. 2015; Mowat 2015) or on the consequences of victimisation due to bullying (Brown Hajdukova, Hornby, and Cushman 2016; Messiou 2012), but have not yet considered what the students think about how social inclusion could be realised in the classroom.

The actions and responses of the TD peers and teachers of students with SEBD should also be taken into account, in addition to the students' own characteristics and approaches to resolving social problems. Research has indicated that TD peers and teachers have generally negative attitudes towards students with SEBD (De Boer et al. 2012a). The attitudes of TD students are found to play a role in the social acceptance of students with SEBD (De Boer et al. 2012b). The teachers' negative attitudes might therefore influence how peers respond to students with SEBD (Hendrickx et al. 2016; Runions 2014). If a teacher responds negatively to the disruptive behaviour of an student with SEBD, their TD peers might make negative inferences about that student. It is therefore necessary to consider all the actors' (peers and teachers) approaches to resolving social problems when examining and improving social inclusion.

To understand the needs of students with SEBD more adequately, it is important to listen to their experiences and to understand their approaches to resolving social problems. As mentioned above, little attention has been paid to date to the students' voices, leaving a number of issues needing exploration. Neither the experiences of primary school students with SEBD who have been socially excluded, nor the approaches to social problems that are applied and preferred by students with SEBD have been examined thoroughly. The current explorative study aims to fill this knowledge gap by exploring: (1) the experiences of socially excluded primary school students with SEBD, and (2) the social problem-solving approaches are applied and preferred by these students.

Method

Design

As we sought to explore and listen to the students' voices, we used semi-structured interviews. The following issues were taken into account in the design of these interviews: (1) participants must fully understand what taking part in a study means, (2) the participants themselves must provide active consent, and (3) the study design must include techniques and methods which reflect the students' mental ages, to facilitate optimal conversation and student engagement (Charlop-Christy et al. 2002; Kirk 2007; Kortessluoma, Hentinen, and Nikkonen 2003; Messiou 2012; Rose and Asher 2004).

Sampling procedure

Sampling

The students included in this study either attended general primary education or segregated special primary education. Participant recruitment was conducted using two different convenience-based processes. All the parents or legal guardians of the participants were asked to provide their consent and to complete a background questionnaire about their child. Approval from the university ethics committee was obtained prior to data collection.

The participants attending general schools were recruited through the authors' personal networks and through a social media campaign targeting parents and teachers of students with SEBD. The following inclusion criteria were applied:

- The student's social inclusion scored low, neglected/ignored or negative, based on sociometric data (sociograms)
- The student received additional support for social, emotional or behavioural difficulties in the classroom.

Participants attending segregated special schools were recruited through a school organisation specialised in special education for students with SEBD. Different inclusion criteria were used for these participants than for the students in general education, as sociometric data was not available for the period the students attended general education schools. Instead, the following inclusion criteria were used:

- The student has previously attended general education schools
- The student was socially excluded while in general education (confirmed by parents).

Participants

Twenty-eight students participated in this study, from grades 5 and 6 (age range 10 to 13 years). The age range is greater than expected for grades 5 and 6 because some participants were required to repeat one or two school years. As the inclusion criteria specified a low social inclusion score, we expected that all participants would be able to share some experience of social exclusion from their time in general education. During the interviews one participant indicated they had no experience of either victimisation or social exclusion, seven participants had no experience of victimisation and four participants indicated that they had not experienced social exclusion. Based on the inclusion criteria of known low

levels of social inclusion in the general classroom and therefore having experience of social exclusion, we expected that all participants could share their experiences with social exclusion in the regular classroom (Damon and Hart 1982). We excluded the interview of the participant with no experience of either type of social exclusion, as there were no answers that could be included in the analysis. Where the students had no experience of victimisation or social exclusion and could not indicate which approach they would have preferred in those situations, their answers were excluded from further analysis.

The educational distribution of the final sample ($N = 28$) was: segregated special primary education ($n = 21$) and general primary education ($n = 7$). Table 1 provides an overview of the distribution of SEBD.

Instrument

Interview protocol: The interviews were conducted using a semi-structured interview protocol designed for the current study. The interview protocol included predetermined questions and instructions, but enabled flexibility in question order and allowed for follow-up on interesting answers. To start a conversation, we began each topic (victimisation and social exclusion from play) with a hypothetical scenario (Visser et al. 2009). The participants were then invited to discuss their own experiences. To make the scenarios more comprehensive for students with indications of attention difficulties or autism spectrum disorder, we used drawings to support the hypothetical scenario (Charlop-Christy et al. 2002). Another reason to use supporting drawings is that drawings can stimulate the recollection of an experience (Salmon 2001). Our drawings were sourced from a moral development study for students attending primary education (Jansma et al. in press, Appendix 1). The scenarios and drawings reflected the gender and social-emotional difficulties experienced by the student. Each hypothetical scenario was followed by questions about the student's own experiences. The students were asked to provide details of the experience of being victimised or socially excluded, including details of how often this was done, what happened, where, and how severe they considered the victimisation or social exclusion. In addition, the students were asked which approaches they, their peers and their teachers had taken to resolve social problems, which approaches they preferred and which approach they thought to be best. Students were asked to explain who initiated the approach to resolve the problem. See Table 2 for an overview of the interview protocol.

The interview protocol was piloted with five TD students (not included in the participant sample) which resulted in the adjustment of the wording of a few of the questions (e.g. the question about the best approach vs. the most preferred or liked approach). We did not pilot the protocol using students with SEBD because of the difficulty with recruiting such students for the study. A reason for this difficulty in recruitment is that it is common for parents of

Table 1. Distribution SEBD.

	Special education		General education	
	Boys ($n = 17$)	Girls ($n = 4$)	Boys ($n = 5$)	Girls ($n = 1$)
AD(H)D	4	2	2	1
ASS	9	2	2	
ODD	2			
Anxiety/extreme shyness	2		1	

Table 2. Overview of questions from interview protocol.

	<p>Interview protocol: Friends in Class</p> <p><i>Hypothetical scenario</i></p> <p><i>Introductory story</i></p> <ul style="list-style-type: none">• Gender and social, emotional difficulty related to victimisation scenario <p><i>Example using scenario of a boy with aggressive behaviour</i></p> <p>This drawing is about bullying. The teacher is not in the classroom. Ravi is new in the class. He has a temper and when he loses it he will throw things around the classroom</p> <p>Mohammed and Nick think it's funny when Ravi gets into a temper and is punished by the teacher because throwing things in the classroom is not allowed</p> <p>Mohammed tries to get Ravi angry. Mohammed says with a weird voice to Ravi: 'You are the strangest one in the classroom. Nobody is stranger than you!' The whole class laughs at Mohammed's comment and Nick gives a thumbs up to Mohammed. Ravi becomes sad and tries his best not to get angry. He feels bullied</p> <p><i>Questions on hypothetical scenario</i></p> <ul style="list-style-type: none">• What could the victim do in this situation?• What could the teacher do?• What could the peers do in this situation?• What would be the best solution? <p><i>Have you ever been victimised/excluded at school?</i></p> <p><i>Questions on experience (if answered 'yes')</i></p> <ul style="list-style-type: none">• How often have you been victimised/excluded?• Could you describe the experience; what happened and where?• How would you rate the severity of this experience? (rating from 1 to 4) <p>Aim 1</p> <p>Aim 2</p> <ul style="list-style-type: none">• What did you do to resolve the situation?• What could you have done?• What could the teacher have done?• What could your peers have done in this situation?• What would be the best solution?
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students with SEBD to be highly protective of their children (Falkmer et al. 2015). To check whether the interview protocol was suitable for the participant group, the first five interviews involving students with SEBD in segregated special education were asked to offer feedback on the interview protocol. They said they had enjoyed participating in the study and that the questions were clearly formulated.

Interview procedure

All interviews were conducted on a one-to-one basis by the first author and six trained Master's students (the research team), except for one interview. At the request of the student, this interview was conducted in the presence of a teaching assistant. The interviewers were all trained in the use of the interview protocol and kept a log of each interview, allowing later reference to unexpected responses. Most interviews were carried out in a small, quiet room at the school. One interview was conducted at the participant's home to account for personal circumstances. All participants were rewarded with a small token of appreciation after the interview. The interviews were held between February 2015 and January 2016 and varied in length between 20 and 45 min.

Each interview started with an overview of the interview procedure and an explanation of the students' rights, their options for participation, anonymity, the possibility of stopping the interview on request and the confidentiality of their responses. All students actively consented to participating and to the interviews being recorded with a digital voice recorder. To leave the students with a positive note, each interview ended with a conversation about the meaning of friendship and why it is nice to play together. During the interviews one student indicated that he did not want to talk about being victimised because his experiences were too upsetting. However, he was determined to complete the interview and talked about his experiences of social exclusion. On this occasion, the interviewer (first author) adjusted the protocol and ended the interview with light conversation about the student's hobbies to ensure the student would leave the interview feeling positive. The taped interviews were later transcribed by the research team using the F4 software (version 6.0.3). The first author checked the transcripts for accuracy.

Coding procedure and interrater reliability

The coding of the transcripts was conducted by the first two authors using ATLAS.ti version 7.10 (Friese 2012). A multi-grounded theory approach was applied, allowing the use of a synthesis of deductive (data-driven) and inductive (theory-driven) coding (Goldkuhl and Cronholm 2010).

Two separate coding procedures were conducted to address both the study's aims. With respect to the first aim, the descriptions of the experiences were inductively coded. This inductive coding process was conducted by identifying specific units of text in the transcripts. These units of text were labelled according to information categories: what and where, and the severity and frequency of the experiences, and included a label identifying the type of experience (victimisation or social exclusion). The aspects coded were: what occurred, where it occurred, the perceived severity of the experience, and how often it occurred.

Regarding the second aim, deductive coding categories were selected and given operational definitions based on five widely accepted coping categories: (1) problem-solving

approach, (2) seeking social support, (3) withdrawing from the situation, (4) externalising behaviour, and (5) internalising behaviour (Causey and Dubow 1992; Skinner et al. 2003). In line with Causey and Dubow (1992) we acknowledge that emotions directed outwards differ from emotions directed inwards and should not be clustered into one category of emotional reaction. The five coding categories, including operational definitions, formed the initial codebook used by the first author to use the deductive codebook to code the applied and preferred social problem-solving approaches found in the transcripts. During the coding, new inductive codes were generated and added to the existing categories (e.g. codes which did not occur in the deductive codebook). In addition, as part of the inductive coding process, existing codes and descriptions within the deductive categories were amended to fit the wording of the participants.

During coding the point of saturation was reached after coding the first 17 transcripts. These were the transcripts of the students from the segregated special primary education.

The interrater reliability (IRR) of the final codebook (the combination of deductive and inductive coding) was tested on a random selection of five interviews which were independently coded by the second author and resulted in a Cohen's Kappa (κ). The first κ was <0.50 , which is not acceptable (Lombard, Snyder-Duch, and Bracken 2002). Based on iterations between the first two authors and the coded data, the codebook was restructured. For example, separate codes were given for the actor and solutions. With this revised codebook, another random selection of five interviews was then independently coded by the first two authors. The IRR was now $\kappa = 0.92$, which is sufficient (Lombard, Snyder-Duch, and Bracken 2002). All interviews were recoded using the renewed and final codebook by the first author.

Results

Codebook

The codebook was the result of a multi-grounded theory approach (Goldkuhl and Cronholm 2010). The codebook consisted of diverse descriptive codes used to code the students' experiences (what, where, perceived severity and frequency), the initiator (teacher, peers, parent or student) and the approaches to resolve social problems. Figure 1 provides a schematic overview of the codebook used to code the applied and preferred approaches to resolve social problems. The five coping categories are hierarchically clustered into two main types: solution approaches, including problem-solving and seeking social support, and avoidance approaches including distancing and emotional reaction, separated into internalising and externalising behaviour.

Research aim 1: experiences with victimisation and social exclusion

Following analysis of the interviews, an overview emerged of the participants' experiences of victimisation and social exclusion at the general education school, including the applied and preferred approaches by the students.

Experiences of victimisation by students with SEBD

What occurred. Frequently mentioned examples of victimisation were goading the student into a fight, name calling and berating. Other experiences that the students mentioned were

Figure 1. Schematic overview of the hierarchical structure of the ‘Social problem-solving approaches’ codebook.

being laughed at, having their lunch taken away, and bullies blocking the way to or from school. Three participants said that they had experienced being victimised, but could not provide examples. One student found it too upsetting to give details about the experience.

I got bullied a lot, especially during gym time in the changing room. My classmates would get my stuff and throw it around, throwing my bag at me until I cried. (Boy, 11 year old, ADHD, general education)

Where. Students’ experiences of victimisation occurred mostly outside the classroom and in the playground, either during the break or before or after school. On most occasions an adult was nearby, such as a school guard or teacher. This was not always the student’s teacher.

Severity. Half the participants said that they found being victimised either seriously or very seriously unpleasant. The other half of the group said that they found the experience rather unpleasant but understood that it was in the past, or that they had accepted that it was not that severe.

I was young when I was bullied, back then I found it really painful. (Girl, 11 year old, ADHD, segregated special education)

Occurrence. The occurrence of victimisation varied between the participants, from ‘just sometimes’ to ‘every week’ (see Table 3 for an overview).

Table 3. Overview of occurrence of victimisation and social exclusion.

Occurrence	Victimising ($n_{\text{participants}} = 20$)	Social exclusion ($n_{\text{participants}} = 23$)
Sometimes	6	8
Once a week	2	1
Often	2	1
Always	5	1
Does not remember	3	6

Experiences of social exclusion by students with SEBD

What occurred. Almost every example of social exclusion was linked to exclusion from play. Two participants reported that they did not have any experience of exclusion because they always played by themselves.

I have no experiences of not being able to play along. If there is another ball, I play alone with the ball next to my friends. (Girl, 12 years old, extreme shyness, segregated special education)

Where. Half the participants did not go into detail about where their experiences of social exclusion occurred. For those who did, almost every experience occurred outside the classroom.

Severity. In general, the participants indicated that they found the exclusion mildly unpleasant and explained that in most situations there was a legitimate reason for not joining the game. Only four participants said that they found being excluded quite severely unpleasant.

It is not so bad now, because I know now that if someone does not want to play with you, they do not want to. And if they cannot understand that by excluding someone, you hurt that person, then I do not want to play with those children. (Boy, 12 year old, autism spectrum disorder, segregated special education)

Occurrence. Most participants indicated that they were sometimes excluded (see Table 3).

Research aim 2: approaches to resolving social problems

The participants were asked which approaches were applied and which approaches they preferred to resolve situations of victimisation and social exclusion. Below, the outcomes are elaborated per situation separately for the applied and preferred approaches, followed by a comparison of the applied and preferred approaches.

Victimisation

Approaches adopted to resolve social problems. Social problems were frequently resolved through 'externalising behaviour', with the student as initiator (see Table 4). Examples of 'externalising behaviour' are 'verbal or physical aggression' and 'retaliation'. 'Problem-solving' approaches were also frequently applied, with either the student or the teacher as the initiator. For example, 'I went to the teacher for support', 'the teacher confronted the bully/bullies' and 'I stood up for myself'.

Preferred approaches to resolving social problems. Overall, the most preferred approaches to resolving victimisation were 'problem-solving' approaches and very diverse in nature (see Table 4). Students said that they preferred their peers to be the initiators in resolving the problem of victimisation. Examples of these preferred approaches were, 'my peers should not bully or bully less' and 'a peer/the class should stand up for me'. In terms of 'seeking social support', students see themselves as the initiator. For example, 'I should go to the teacher and ask him/her for help' and 'I should tell my mum about the bullying'. Regarding 'distancing', different examples were given in relation to dealing with victimisation. Students mentioned examples such as, 'I could walk away from the situation' and 'I should ignore the name calling,

Table 4. Number of applied and preferred approaches per actor, victimisation.

Initiating actor	Applied approach					Preferred approach				
	Student	Peer	Teacher	Parent	Total	Student	Peer	Teacher	Parent	Total
Problem-solving	13	6	12	5	36	4	7	4		15
Seeking social support	10		1	3	14	3	1			4
Distancing	10		4		14	4	1			5
Externalising	20		1	1	22	1				1
Internalising										
Total	53	6	18	9		11	9	4		

instead of calling them names or kicking them'. Although 'internalising behaviours' are some of the approaches used to resolve social problems, this was not found to be a preferred approach to resolve victimisation (see Table 4).

Social exclusion

Applied approaches to resolve social problems. In relation to applied approaches, there are slight degrees of variation based on emotional responses, externalising and internalising behaviours (see Table 5). 'Problem-solving' approaches were frequently mentioned as an approach to social problems, in most cases with the teacher as initiator (e.g. 'the teacher explained in the classroom that everybody should play together' or 'the teacher said that I could also play with the ball'). Overall, however, the students themselves were the main initiators, for example, 'I go and do something else alone or with someone else' (distancing approach) and 'I asked why I could not join in' (problem-solving approach).

During the interviews, four students said that they had no experience of social exclusion. Three of the participants elaborated that this was because they chose to play alone. These responses were coded under the 'distancing' category, because the decision to play alone is also one way to prevent a social problem by avoiding the unwanted situation.

Preferred approaches to resolving social problems. The most preferred approaches to resolving social exclusion involved 'distancing' and were initiated by the students. A frequently mentioned example of distancing was, 'I would go away and play somewhere else by myself'. A combination of 'distancing' and 'seeking social support' was also mentioned a couple of times, for example, 'I would go somewhere else and ask someone to play with me'. Another preferred approach to resolving social exclusion was 'problem-solving' with a peer as initiator: 'a peer stands up for me and says that everybody can play together'.

Applied versus preferred approaches to resolving social problems

Victimisation

Table 4 shows differences between the applied and preferred approaches for situations of victimisation. Students applied multiple approaches to resolve these situations, with the students taking the main role as initiator and mostly applying externalising approaches.

There were two boys who would call me names and say that I looked like a girl. That hurt me so much that I would see a red haze and I would punch and kick them. (Boy, 13 year old, autism spectrum disorder, segregated special education)

In comparison with the preferred approaches to resolving victimisation situations, students tended to prefer their peers to play a larger role as initiators to stop the victimisation. Only one student said that he preferred to use physical aggression because this response made him feel good when he was being victimised. Other students who had displayed externalising behaviours when being victimised preferred different approaches. Some elaborated that they now know how to control themselves better, although it still sometimes goes wrong.

I know it is not good, but I prefer to hit people. A few weeks later I will think that it was bad, but at that time it is good. (Boy, 12 year old, ADHD, segregated special education)

Eight students mentioned that they preferred to seek social support from their teachers to resolve social problems, but that they would not do so for various reasons. Students explained that they lacked trust in their teacher's skills or that they believed they would be or had been punished after going to the teacher and asking for support.

I would like to go tell the teacher that they (the peers) would not let me play with them, but I do not. Because last time I was the one who was sent to the headmaster. (Boy, 10 year old, ADHD, segregated special education)

Social exclusion

When comparing the applied and preferred approaches to resolving social exclusion a few differences were found, see Table 5. Although some students applied 'distancing' approaches (e.g. 'I went to play alone' and 'I went somewhere else'), these students preferred their peers to be the initiators in resolving the problem ('problem-solving' approach), by 'standing up for them and inviting them to play along'.

If social exclusion was a frequent issue, students preferred to seek social support from their teacher. However, some students mentioned that this would not be a successful solution because it is no fun playing with others when it is enforced by the teacher.

It is no fun playing with the rest if the teacher has forced them to let you join the game. You know that it would not be fun anymore. (Boy, 12 year old, fear, segregated special education)

Conclusion

To date, little attention has been paid to the voices of students with SEBD. This explorative study sought a better understanding of the experiences of socially excluded primary school students with SEBD in inclusive classes, and the approaches these students apply and prefer to resolve social problems such as victimisation and social exclusion.

Regarding the study's first aim, we conclude that the students' experiences of victimisation are varied, ranging from fighting to name calling, and usually occur outside the classroom in the playground. Moreover, in most cases an adult is nearby. The social exclusion experiences also usually occurred in the playground but were not as diverse as those of victimisation.

Regarding the second aim of the study, three conclusions can be drawn from the applied and preferred approaches to social problem-solving. First, in victimisation situations the participants usually resort to externalising behaviours, such as verbal or physical aggression and retaliation. Second, some students applied and preferred distancing approaches, such as playing alone as a form of self-protection to avoid situations where they might be socially excluded. Third, there is a difference between the applied and preferred social problem-solving approaches. Students are often the initiators in the approaches applied, but would prefer to see other actors, usually peers, take initiative more.

Discussion

The results indicate that victimisation and social exclusion usually occurred in the playground. One explanation could be that students with SEBD do not know how to play, engage and interact with peers, leading peers to victimise or exclude these students. As a preventive

or coping mechanism, students apply 'distancing' approaches (e.g. they want to be alone or play by themselves). This is in line with a study by Kasari et al. (2011), where students with autism spectrum conditions preferred to isolate themselves or were ignored by their peers. The social inclusion of students with SEBD could thus benefit from support in learning how to play with peers during breaks. In addition, identification of victimisation and social exclusion hot spots are needed with instructions for teachers and playground supervisors to monitor these hot spots and intervene when needed (Ttofi and Farrington 2011).

A remarkable finding was that several participants said they had no experience of being victimised or socially excluded. On the basis that a low or neglected score on the sociograms was a criteria for inclusion in the study, and parents, carers and teachers confirmed a history of victimisation and social exclusion in general education classes, it was expected that all participants would have experiences to share about victimisation and social exclusion from their time attending inclusive classes. However, one participant said they had no experience of either victimisation or social exclusion, seven participants had no experiences with victimisation and four participants indicated that they did not have experiences with social exclusion. There can be a number of explanations for this phenomenon. Students may not have felt safe enough to talk about traumatic situations such as victimisation. The experiences may be less extreme than indicated by their parents and teachers (Oldenburg, Bosman, and Veenstra 2016). Their perceptions may have changed over time and therefore have changed their conception of the experience (Kirk 2007). Perhaps the students diminished the severity of their experiences as a coping strategy. In studying the transcripts we found that despite efforts by the interviewers to provide examples of victimisation and social exclusion that were different to the hypothetical situation used in the interview, the students did not change their original statements. The transcripts did not indicate signs of trust issues, and in fact the participants indulged in a lot of small talk during the interviews.

Research indicated a correlation between the type of approach applied to resolving a social problem and the social inclusion of students (Gumpel and Sutherland 2010; Kauffman and Landrum 2012; Newcomb, Bukowski, and Pattee 1993; Rose and Asher 1999). Externalising behaviour approaches to resolving social problems are less acceptable and more likely to negatively affect the individual's social position, whereas behaviours which focus on actual problem-solving are positively correlated with a positive social position (Newcomb, Bukowski, and Pattee 1993). The participants in the current study mostly applied 'distancing' approaches and 'externalising behaviours' to resolving social problems, such as victimisation and social exclusion. However, they preferred 'problem-solving' approaches. This implies that research is needed on how to help students with SEBD apply their preferred approach, the socially acceptable approach.

The reluctance of students to seek social support from their teachers raises several questions. Students indicated that they would have preferred to go to their teacher for support. However, they reported that they would not do so due to a lack of trust in the teacher-student relationship or from fear of being punished themselves. As a consequence, the students applied externalising or distancing approaches, such as physical aggression or ignoring bullies. Other studies have also found that victims do not share their experiences with their teachers (Novick and Isaacs 2010). However, the reasons given by students in those studies differed from the current study. Students felt ashamed or feared that the teacher would dismiss their story as not credible in those studies. A study by Zee, de Jong, and Koomen (2017) found that the perception of the teacher-student relationship, especially with regard

to conflicts, is most likely the result of their own behaviour and characteristics rather than the attitude of the teachers. Zee et al. (ibid) also found that the teachers' perceptions are formed from teacher and student characteristics, especially for boys and students showing externalising behaviours. This confirms the image typically held by general education primary teachers that students with SEBD are difficult to handle, based on the students' disruptive behaviour (Goei and Kleijnen 2009). This in turn often results in a vicious circle and a poor teacher-student relationship (Zee, de Jong, and Koomen 2017). Another possibility regarding teacher-student trust issues could be that the teacher does not see the student as a victim but rather as a bully (Novick and Isaacs 2010; Oldenburg, Bosman, and Veenstra 2016). What exactly leads to the lack of trust on the part of the students remains unanswered in the current study and could be a focus for future research.

Limitations

The current study has several limitations which should be considered when interpreting the results. This study was conducted using semi-structured interviews with students attending primary schools. During the selection of participants it was found that some students had repeated one or two school years. Within the current study we did not exclude these students, as the reason for repeating a year could be explained by difficulties adapting to the school transfer. Another explanation could be some students experiencing cognitive disabilities alongside social and emotional problems and behavioural difficulties.

The design of the study and the sample (students varied in age, type of SEBD, and gender and were from both special and general schools) invites the argument that the results cannot be applied generally to the experiences of all students with SEBD. We acknowledge the limitations regarding the heterogeneity of the sample and that the results should be interpreted with some caution. It is questionable whether the same results would be found with a more homogeneous sample, therefore, a study with a larger and more homogenous sample is recommended. However, caution is also needed with a larger, homogeneous sample. A saturation point for codes was reached during the coding process in the current study. No new codes were added to the codebook after the first 17 transcripts. This indicates that enlarging the sample would probably not lead to new or different findings (Corbin, Strauss, and Strauss 2014). In addition, a homogeneous group of participants would not represent the reality of the classroom and would require focus on specific types of SEBD. Despite limitations in the heterogeneity of the sample, this study provides an overview of the experiences shared by participants during the interviews and insight into the range of needs and perceptions of students in order better to understand social inclusion and to allow students' voices to be heard.

This study used peer-nomination data to determine whether students in general education had a low or rejected social status. We also argued that students' perceptions of their own social inclusion should be given sufficient consideration when using sociometric data such as peer nominations or teacher reports (Avramidis et al. 2017; Bauminger and Kasari 2000; Frostad and Pijl 2007). The data in our study supports this argument. Although the sociometric data indicates a low level of social inclusion, the students themselves indicated having little to no experience of victimisation or social exclusion. Future research should first control for the students' own perception of social inclusion before interviewing them about their experiences of social exclusion.

Future research

The current study interviewed students aged 10–13 years. It has been argued that interventions should be implemented as early as possible (Greer et al. 2015; Guralnick et al. 2007) to prevent long-term negative consequences. Therefore, it is imperative to know which approaches are preferred by younger students in primary schools. We suggest future research with younger students with SEBD which might capture from the outset their perceptions and preferences for approaches to resolving social problems.

The explorative nature of the current study allows us to make generalisations about the field of practice and students with SEBD. Considering the limitations of the study and the critique of sociometric data, we recommend that the current study be reconstructed on a larger scale using a sample which reflects students with SEBD in inclusive classes in terms of age, gender, type of SEBD and level of social participation (Avramidis et al. 2017). The study should also address questions arising from students with a history of social exclusion who choose to report ‘no experiences’ and ‘trust issues’ with teachers, including interviewing teachers or measuring their attitudes.

Overall, it can be concluded that the students with SEBD in this study preferred to be in classes where every actor (i.e. their peers, teachers and the students themselves) takes responsibility for their social inclusion. However, there is no preferred one-size-fits-all approach or solution to victimisation and social exclusion. This study’s results indicate that students with SEBD had different experiences and preferred different approaches to resolving social problems. Therefore, it is self-evident that the students’ voices (e.g. their needs and preferences) should be heard when teachers, researchers or intervention designers attempt to understand the social inclusion of students. Students have the right to be heard in situations which concern them (Unicef 1989) and we should listen to them more often to gain a better understanding of their views. Only then will we be able to understand their needs adequately.

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Appendix 1

Example of a hypothetical victimisation scenario for boys.

Drawing by Emma Wilson (artist), sourced from the moral development study of Jansma et al. (Used with permission).

School segregation and social participation: the case of Norwegian children with physical disabilities

Jon Erik Finnvold

ABSTRACT

This study explores the conditions that limit social participation for children with physical disabilities, and in particular, how school segregation practices affect participation in formal and informal after-school activities. In a sample of 491 children, to varying degrees, a majority of the children were taken out of ordinary classroom education and tutored in smaller groups or with one single teacher or assistant, or attended special schools. Results showed that the more the child was segregated from ordinary classroom education, the lower were his or her chances of seeing friends or participating in after-school formal group activities. In addition to parent's income and educational attainments, various measures of the severity of the child's disability significantly affected social participation. In particular, parental background affected the chances of participation in formal, organised activities. However, these factors alone could not account for the empirically strong association between segregation practices and social participation. While probably not intentional, segregation practices effectively limit or even prevent children with physical disabilities from engaging in a wider social setting. The very same welfare state practices responsible for integrating children maintain institutional arrangements that effectively exclude children with disabilities from participating in mainstream society.

Introduction

Spending time with friends and taking part in organised leisure activities provide opportunities to meet, discover common interests, learn to interact and develop friendships. By building friendships, children can experience acceptance by others, grow in self-esteem and develop autonomy while being away from the direct attention of their parents. Social participation with peers also enhances cognitive development, helping children to acquire skills that contribute to their learning capacity in a school context (Bottcher 2010).

Several reviews have systematised the research on physical disabilities and social participation (Imms 2008; Pratt, Baker, and Gaebler-Spira 2008; Shikako-Thomas et al. 2008; Bottcher 2010; Bult et al. 2011; Piškur et al. 2012). The reviews conclude that the social participation of children with physical disabilities is lower than average, and decreases with

increasing age and the severity of their condition. Furthermore, children with disabilities are relatively often interacting with social networks that involve family, paid staff or other children with disabilities.

Social capital, which is characterised by strong networks within a limited group of people, is often labelled 'bonding social capital'; whereas 'bridging social capital' involves networks that are more 'outward seeking' and characterised by an exchange of information and social contact (Putnam 2000). While bonding social capital is important for 'getting by', bridging social capital plays an important role in 'getting ahead'. Both types of social capital are important components of quality of life during childhood, but bridging in particular may have the potential of pointing towards to a successful social integration in later adult life.

For the building of both forms of social capital, some form of social interaction is required. This study analyses factors that enable or constrain participation in two specific arenas:

- organised leisure activities, and
- Children visiting each other in their own homes after school.

The frequency of social participation is especially related to the possible influence of school placement and classroom segregation on social participation. Because school placement and segregation are determined by factors such as age, functional ability, parental social background and local contextual factors, these determinants are analysed simultaneously.

Special education, school placement and classroom segregation

Cerebral palsy sometimes involves cognitive difficulties (Bottcher, Flachs, and Uldall 2010), as well as a higher frequency of sensory and physical limitations (Andersen et al. 2008), with negative implications for the learning process. Thus, children with physical disabilities often receive special education, which may take the form of placement in special schools, segregated education within ordinary schools or inclusion within ordinary classes. The consequences of school segregation for social participation will depend on two factors:

- The actual scope or degree of segregation practices in a given society, and
- The extent to which segregation affects social participation in after-school activities.

As to the actual scope of segregation, a comparative study concluded that Scandinavian children with different types of disabilities, including Norwegian children, have a relatively high level of participation in recreational activities (Ullenhag et al. 2012). Ullenhag et al. suggest that a major explanation for this high level of participation is an official commitment to including children with disabilities in regular classes 'to gain the same social participation and theoretical knowledge as children without disabilities' (377). The 'enrichment perspective' (Befring 1997) views the school as a social context in which everybody profits educationally from coexistence, so that formerly excluded or isolated students and their teachers are included as both necessary and vital members of the mainstream educational community. The 'enrichment perspective', also adopted by official Norwegian policy, states that disabled children must be included in regular schools, preferably in ways that do not entail segregation (Ministry of Education and Research 2011). Nonetheless, a study of Norwegian children with disabilities born between 1993 and 1995, all of whom were

integrated into regular schools, found that they tended to become less involved in regular classroom activities as they grew older, despite the inclusional policy (Wendelborg and Tøssebro 2008, 2010).

As to the impact of segregation on social participation, the literature offers conflicting results. Two studies from Canada found that an adapted and segregated school environment was associated with a greater involvement in social leisure activities (Law et al. 2007; Shikako-Thomas et al. 2013). Yet, several studies have found the opposite, concluding that school segregation negatively affects children's social participation in leisure time (Kennedy, Shukla, and Fryxell 1997; Wendelborg and Tøssebro 2008; Kang et al. 2010; Wendelborg and Kvellø 2010; Longo, Badia, and Orgaz 2013).

Several factors constitute barriers to social participation, while also influencing the likelihood of being ascribed to segregated educational practices. The scholarly consensus is that the severity of disability and the level of functioning negatively affect social participation (Bult et al. 2013; Tonkin et al. 2014). A Swedish study found that social participation within a school was not affected by severity, a finding explained in part by the facilitation factors such as teacher attitudes (Almqvist and Granlund 2005).

Both geographical and social factors, as well as the severity of the condition, can have an impact on the level of integration in ordinary classroom education. Productivity demands, district of residence, school policy and parental educational background were all environmental factors that affected participation (Kivirauma, Klemelä, and Rinne 2006; Shifrer, Muller, and Callahan 2011; Szumski and Karwowski 2012; Banerjee et al. 2016). To be able to estimate the consequences of inclusion in mainstream schools on social participation, researchers have to assess carefully the actual scope of school placement and segregation practices.

Few studies have examined the associations between social participation and the degree of inclusion in ordinary schools, while at the same time accounting for relevant parental, family and individual characteristics, and relying on a larger N representative sample. By utilising the rich possibilities in Norwegian official statistical registers, in combination with a survey, this study contributes to the existing literature. The study also consists of a nationwide sample that includes a major part of the total population with cerebral palsy.

Data and methods

Population of investigation

The population under investigation is drawn from an official register that included recipients of compensatory cash benefits. In Norway, families with a child with a disability or a chronic disease may apply for public income support to compensate for expenses related to the severity of the disease. The benefits are granted by the Norwegian Labour and Welfare Service (NAV). The cash benefits are of two types: the *basic benefit*, intended to compensate for additional expenses related to the disability or chronic disease, and the *attendance benefit*, which compensates families for expenses related to home care and nursing of the child. To be entitled to a benefit, the child must suffer from a chronic condition, even after an adequate treatment programme has been established. The family sends an application to the local labour and welfare service, and a physician-certified, official diagnosis must also be included in the application that documents the child's condition. The diagnosis and severity of that

condition constitute the only valid criteria for receiving the benefits; neither income nor any other aspects of the family situation are considered.

Definition of physical disability

Based on the availability of diagnoses in the register of basic and attendance benefits, 'physical disability' in this study includes cerebral palsy (approximately 80% of the total sample, ICD-10 code G80), spina bifida (10%, ICD-10 code Q5) and a residual (10%), including neurological conditions with implications for physical disability (ICD-10 codes Q71–73, Q78.0, G12, G70–73).

Response rate

A total of 804 mothers and fathers with a child between 6 and 16 years of age (per. 1 January 2012), having a confirmed diagnosis related to physical disability, were identified in the NAV register. In most cases, the children lived either with both their parents or with their mother, with a postal questionnaire mailed to the mother's address. When the child only lived with the father, then the father received the questionnaire. Organised and prepared by Statistics Norway, the questionnaire was collected in April–June 2012. A total of 491 answers were received, resulting in a response rate of 61%. This response rate is normally considered a respectable result, as it matches the same level as surveys that Statistics Norway conducts using CATI-based personal interviews. Access to information available in the official registers allowed me to compare the net sample with the non-responders. Non-responders tended to have a lower education than responders (a response rate of 50% for parents with primary education as their highest achieved education, compared to 69% for those with a university education of any duration). Although response rates were also lower for one-parent families, the difference was not statistically significant. The level of cash benefits (an indicator of relative need) had no impact on the parents' tendency to respond, nor did the country of origin. Somewhat surprisingly, parents born in non-Western countries (i.e. outside the EU, the OECD, the US, Canada, Australia and New Zealand) tended to have an average response rate.

Merging of registers

Given the availability of unique personal identification numbers available for the basic and attendance benefits register, as well as for a number of other official registers available for all persons with a personal residence in Norway, it was possible to construct a file with information about educational attainment, the individual's family background and other relevant variables. The variables used in the study are as follows:

- Educational attainments: individually based official education statistics collected by Statistics Norway document the educational activities of all Norwegian residents from the completion of lower secondary school to the completion of all tertiary education.
- Based on information about the level of education in each municipality, a variable measuring the overall educational level of the municipality for each child was constructed.

The values were pre-coded in the construction of the file, in order to avoid the possibility of a backward identification of individuals in the sample.

- Severity of condition: the benefits register also includes information about the amount of benefits that the family received in 2008. Families in the lowest quartile received an average amount of 5600 NOK (approximately 680 euros), while families in the highest quartile received 36,400 NOK (approximately 4400 euros). Variations in the amounts of benefits received indicate the severity of the disease.
- Information about parents' income was retrieved from the tax registers.
- Co-resident biological parents: Population statistics identified individuals living at the address of one or both parents.
- Age and gender: the general population register provided information about the age and gender of the study population.

Questionnaire

From the results of the survey questionnaire, several measures were included for capturing the children's social participation in after-school activities. Other measures in the questionnaire were related to inclusive education practices, the children's functional ability and parents' perceptions of their children's performance in school. The precise wordings of the questionnaire items are displayed in Tables 2 and 3.

Statistical analysis

The data were analysed using multiple logistic regression models. In addition to the questionnaire items that capture the degree of inclusion in ordinary classroom education, three groups of variables were included in the analyses. Individual variables described the grade of the children, and include measures of the severity of the condition and need for assistance. Family variables contain family typology (lone parent vs. other), both parents' income and mother's education. Finally, the overall educational level indicates the social structure of the municipality that the family resides in. The first column in Tables 4–6 presents the results for each group of variables. The second, third and fourth columns include models that successively add each group of variables.

Characteristics of sample

The characteristics of the sample appear in Table 1. To some extent, boys are over-represented, which is an expected result given that in many cases the frequency of disabilities are over-represented among boys. Younger age groups appear under-represented. Because not all parents are aware from the outset of the possibility of applying for benefits, many will acquire this knowledge at later stages and apply them. As the table shows, the children's functional status varies considerably, from those able to walk without assistance (23%) to those who are dependent on a wheelchair operated by others (19%). The amount of benefits received by the families is grouped into three categories, thereby indicating variations in the level of need for assistance as formally ascertained by the Norwegian national insurance organisation. The group with the least need (22% of the sample) received an annual amount

Table 1. Sample characteristics. *N* (%).

	<i>N</i>	(%)
<i>Gender (491)</i>		
Boy	283	(58)
Girl	208	(42)
Total	491	(100)
<i>Grade in primary school (491)</i>		
1–4	102	(21)
5–7	184	(37)
8–10	205	(42)
Total	491	(100)
<i>Ability to walk (469)</i>		
Can walk unassisted	109	(23)
Walk unassisted, but not long distances	79	(17)
Can walk, but restricted mobility	95	(20)
Usually use a wheelchair, but operate it independently	99	(21)
Dependent on a wheelchair that has to be operated by others	87	(19)
Total	100	(100)
<i>Amount of compensatory cash benefit [annual mean NOK] (491)</i>		
Low [14,260]	109	(22)
Medium [46,598]	293	(60)
High [94,107]	89	(18)
Total	491	(100)
<i>Family (489)</i>		
Lives with both parents	376	(77)
Lives with one parent	113	(23)
Total	489	(100)
<i>Mothers' educational attainment (481)</i>		
Primary school	81	(17)
Secondary school	184	(38)
University/tertiary education	216	(45)
Total	481	(100)
<i>Parent's income level [annual mean NOK] (479)</i>		
Low [1 quartile, 434,966]	120	(25)
Low/medium [2 quartile, 591,004]	120	(25)
Medium/high [3 quartile, 6900,086]	120	(25)
High [4 quartile, 1024,815]	119	(25)
Total	479	(100)
<i>Average educational level in resident municipality, percentage of residents with a university education (490)</i>		
High, 27% and above	190	(39)
Medium, 18.7–26.6%	194	(40)
Low, up to 18.6%	106	(22)
Total	490	(100)

of 14,000 NOK (approximately 1650 euros), whereas the group with the highest level of need (18% of the sample) received 94,000 NOK (approximately 11,100 euros). A total of 22% of the sample live in municipalities, in which less than 8.6% of the adult population between 20 and 69 years of age had a university level education. A total of 39% of the sample lived in municipalities, with more than 27% having a university level education. The number observations for many items are less than 491 because of item-nonresponse in the survey, and missing information in registers.

Table 2. School placement, classroom segregation and after school social participation. *N* (%).

	<i>N</i>	(%)
<i>Inclusion in regular classroom education (491)</i>		
In a regular class all of the time	210	(43)
In a regular class at least half the time	118	(24)
In a regular class less than half the time	96	(20)
In a special school	67	(14)
Total	491	(100)
<i>How often do the child have friends visiting at home? (482)</i>		
Every day	12	(3)
Several times a week	104	(22)
Once a week	70	(15)
Less than once a week	182	(38)
Never	114	(24)
Total	482	(100)
<i>How often do the child visit friends in their home? (470)</i>		
Every day	6	(1)
Several times a week	66	(14)
Once a week	52	(11)
Less than once a week	157	(33)
Never	189	(40)
Total	470	(100)
<i>Do the child take part in organised group-activities during out of school time? (488)</i>		
Yes	296	(61)
No	192	(39)
Total	488	(100)

Results

Descriptive statistics

As displayed in Table 2, 44% of the children attended regular classroom education. Roughly 20% of the children spent less than half their time in regular classrooms, and 14% attended special schools. As expected from previous research results, children with a physical disability are not as socially active as their peers. The table documents that for children with physical disabilities, 62% of the parents stated that their children had friends over to visit less than once a week, while 73% stated that their children visited other friends less than once a week. A representative Norwegian investigation using the same measures of participation found that less than 15% of the children visited other friends or had friends visit in their homes less than once a week (Sandbæk 2004). In the present investigation, 39% of the parents answered no to the question: 'Does the child take part in organised group activities outside of school, such as sports, games music or the like?' In a previous Norwegian investigation, a total of 28% stated that they rarely or never took part in organised activities such as sports (Sandbæk 2004).

In Table 3, descriptive statistics display an association between school segregation, individual characteristics and social participation. Boys seem to be more often segregated than girls, and segregation increases as the child grows older. Both these findings are line with previous research, but a chi-square test could not confirm a statistical significant association. Relatively steep and statistically significant (chi-square test) gradients exist between functional ability, amount of compensation and segregation. The majority of children who can walk unassisted, or receive the lowest amount of compensatory benefits, experience a fully

Table 3. School segregation, individual and family characteristics, social participation. Descriptive statistics.

	Total	Degree of school segregation				(N)
		In a regular class all of the time	In a regular class at least half the time	In a regular class less than half the time	In a special school	
<i>Gender</i>						
Boy	100	40	27	20	12	(283)
Girl	100	46	20	18	15	(208)
<i>Grade in primary school</i>						
1–4	100	52	23	18	8	(102)
5–7	100	43	26	20	11	(184)
8–10	100	38	23	20	19	(205)
<i>Ability to walk***</i>						
Can walk unassisted	100	70	17	8	5	(109)
Walk unassisted, but not long distances	100	53	30	11	5	(79)
Can walk, but restricted mobility	100	38	27	19	16	(95)
Usually use a wheel-chair, but operate it independently	100	39	32	22	6	(99)
Dependent on a wheelchair that has to be operated by others	100	10	14	37	39	(87)
<i>Amount of compensatory cash benefit (annual mean NOK)***</i>						
Low (14,260)	100	79	13	2	6	(89)
Medium (46,598)	100	42	29	20	19	(293)
High (94,107)	100	16	18	33	33	(109)
<i>Family</i>						
Lives with both parents	100	46	24	19	12	(376)
Lives with one parent	100	34	26	21	19	(113)
<i>Mothers' educational attainment</i>						
Primary school	100	36	25	26	14	(81)
Secondary school	100	37	28	21	14	(184)
University/tertiary education	100	51	21	16	13	(216)
<i>Parent's income level (annual mean NOK)</i>						
Low (1 quartile, 434,966)	100	41	19	26	14	(120)
Low/medium (2 quartile, 591,004)	100	40	27	20	13	(120)
Medium/high (3 quartile, 6900,086)	100	43	26	18	14	(120)
High (4 quartile, 1024,815)	100	50	25	13	12	(110)
<i>Average educational level in resident municipality, percentage of residents with a university education*</i>						
High, 27% and above	100	44	24	23	9	(106)
Medium, 18.7–26.6%	100	44	21	24	11	(194)
Low, up to 18.6%	100	41	28	13	18	(190)
<i>How often do the child have friends visiting at home?***</i>						
Every day	100	75	25	0	0	(12)
Several times a week	100	72	21	4	3	(104)
Once a week	100	60	30	6	4	(70)
Less than once a week	100	38	30	19	13	(182)
Never	100	9	15	46	30	(114)
<i>How often do the child visit friends in their home?***</i>						
Every day	100	83	17	0	0	(6)
Several times a week	100	86	11	2	2	(66)

(Continued)

Table 3. (Continued).

	Total	Degree of school segregation				(N)
		In a regular class all of the time	In a regular class at least half the time	In a regular class less than half the time	In a special school	
Once a week	100	69	27	0	4	(52)
Less than once a week	100	47	34	10	8	(157)
Never	100	14	21	40	25	(189)
<i>Do the child take part in organised group-activities during out of school time? We are thinking about sports, hobbies, music or the like.***</i>						
Yes	100	52	24	14	10	(296)
No	100	29	24	28	18	(192)

* $p < 0.05$; *** $p < 0.001$.

integrated regular classroom education. The opposite seems to be the case for children with the lowest functional ability (dependent on a wheelchair) or the highest level of benefit: a majority are segregated from ordinary classroom education.

To a certain extent, children living with one of their parents more often experience a segregated classroom education. For children of parents with a tertiary education or belonging to the upper income quartile, chances of attending a segregated education seem to be lower. However, any significant association between income and segregation was not confirmed (chi-square test), and associations between mothers education, lone parenthood and segregation failed to meet the 5% significance criteria ($p = 0.06$ and 0.08 , respectively).

The table displays a strong association between school segregation and social participation. A sharp contrast exists between children who spend all of their time in an ordinary classroom, and children who spend less than half their time in/or attend a special school. Children who experience a gentler form of segregation (more than half their time spent in a regular classroom) have a frequency of participation somewhere in-between.

Multivariate analyses

Table 4 presents the results of participation in organised leisure activities. The first column includes results from logistic regression showing the odds-ratios for each variable separately. Participation is also low for children dependent on a wheelchair operated by others. Participation increases significantly for children who have mothers with a university education, whereas children belonging to families in the lowest income quartile have less chances of participation in organised leisure activities. Children in municipalities with the highest educational level have higher levels of participation. Children in special schools and children who spend less than half their time in a regular class have a lower participation compared to children who spend all their time in a regular classroom. Model 1 to 3 present multivariate analyses. The first include individual variables, showing a reduced participation for children dependent on wheelchair. The second model reveal that a low parental income reduces participation, and having a mother with a tertiary education or living in a municipality with a relatively high average educational level increase participation. The final model added the school segregation variable to the model.

The log likelihood decreased for each of the three models, implying that each group of variables has a significant contribution to the understanding of variations in participation.

Table 4. Logistic regression analysis. Probability of participation in organised group activities in leisure time.

	Adjusted odds-ratio for each group of variables	Model 1 adjusted odds-ratio	Model 2 adjusted odds-ratio	Model 3 adjusted odds-ratio
Individual variables				
<i>Grade in primary school</i>				
1–4	1	1	1	1
5–7	0.77	0.77	0.66	0.69
8–10	0.63	0.63	0.61	0.64
<i>Ability to walk</i>				
Can walk unassisted	1	1	1	1
Walk unassisted, but not long distances	0.80	0.80	0.67	0.68
Can walk, but restricted mobility	0.66	0.66	0.69	0.80
Usually use a wheelchair, but operate it independently	0.94	0.94	0.90	0.97
Dependent on a wheelchair that has to be operated by others	0.22***	0.22***	0.18***	0.25**
<i>Amount of compensatory cash benefit</i>				
Low (14,260)	1	1	1	1
Medium (46,598)	0.89	1.07	1.11	1.44
High (94,107)	0.43**	0.87	0.83	1.23
Family variables				
<i>Family type</i>				
Lives with both parents	1		1	1
Lives with one parent	0.84		0.80	0.84
<i>Mothers' educational attainment</i>				
Primary school	1		1	1
Secondary school	1.50		1.16	1.19
University/tertiary education	3.55***		2.79**	2.59**
<i>Parents' income level</i>				
Low (1 quartile, 434,966)	1		1	1
Low/medium (2 quartile, 591,004)	1.78*		1.78	2.01*
Medium/high (3 quartile, 6900,086)	2.86***		3.01**	3.29***
High (4 quartile, 1024,815)	2.42**		2.68**	2.86**
Geographical context				
<i>Average educational level in resident municipality, percentage of residents with a university education</i>				
Low, up to 18.6%	1		1	1
Medium, 18.7–26.6%	1.16		1.01	1.06
High, 27% and above	2.36***		2.41**	2.54**
<i>Inclusion in regular classroom education</i>				
In a regular class all of the time	1			1
In a regular class at least half the time	0.55*			0.51*
In a regular class less than half the time	0.27***			0.41**
In a special school	0.29***			0.41*
Log likelihood	–	–295,91	–249,58	–244,63

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

However, when performing a log-likelihood ratio test, the reduction in log-likelihood was not large enough to meet the 5% significance level.

Tables 5 and 6 present the probability of having friends visiting or visiting other friends less than once a week. The statistical effect of school segregation remained strong, even after measures of individual, family and geographical context were included in the analysis. A considerable reduction in log-likelihood from model 2 to model 3 could be observed for both outcomes. In the analysis of both outcomes, children receiving a low amount of compensatory benefits tended to have visits more often. In the case of visiting other friends in their homes, all of the children dependent on a wheelchair operated by others belonged to the category that visited less than once a week. Informal social encounters such as these did not have a significant social gradient like the one observed for organised leisure activities in Table 3, although inclusion of the family variables added to the statistical fit of the model (with a moderate decrease in log likelihood from Model 2 to Model 3).

Schools as arenas of social inclusion?

Schools are key arenas for reducing the vulnerability of children from diverse social and bodily backgrounds. Children's capabilities are developed by paving the way to productive employment, and in general developing the pupil's sense of belonging in society (Razer, Friedman, and Warshofsky 2013). In spite of official and politically stated ideals of integration, segregation is the preferred way to organise education that most effectively equips children with the cognitive abilities needed to live an independent life. Vislie concluded in 2003 that, 'inclusion has not gained much ground in western Europe', inferring that the inclusive terminology signifies a linguistic shift rather than a new agenda (Vislie 2003). Even without evidence on changes in the scope of segregation over time, it seems likely that this conclusion still holds, at least in the case of children with physical disabilities.

It is well known that professionals in welfare organisations perform contrary to their own goals, which the segregation practices discussed in this study appear to be a case of. As street-level bureaucrats, teachers establish routines and client typologies that enable them to cope with unpredictability, large classes or inadequate resources (Lipsky and Hill 1993). Parental social background, and in particular functional status and needs for assistance (level of benefit), influenced the chances of being segregated, therefore implying that the more vulnerable children are more likely to experience segregation. The following formulation represents the official policy, stating that,

The aim is to provide special education and help in ways that do not involve segregation of children and youths, but it is the consideration of what is to the best benefit of the child that has to be crucial. (10)

The latter part of the statement clearly opens a room for professional decisions in 'what is to the best benefit' of the child. Segregation might then be used as a means of shaping a more manageable group of children, or simply perceived by professionals as the best way to educate children with disabilities (Hausstätter and Connolley 2007).

Whatever the sources or driving mechanisms behind segregated education, a strong association between school segregation and social participation is evident from the results presented in this study. The strength of the association seems to differ between informal visits in homes and organised leisure activities. The informal visits and meetings in children's private homes are to a great extent determined by school segregation, functional status and

Table 5. Logistic regression analysis. Probability of having friends visiting in their own home after school at least once a week.

	Adjusted odds-ratio for each group of variables	Model 1 adjusted odds-ratio	Model 2 adjusted odds-ratio	Model 3 adjusted odds-ratio
Individual variables				
<i>Grade in primary school</i>				
1–4	1	1	1	1
5–7	0.58*	0.58	0.58	0.65
8–10	0.41**	0.41**	0.41**	0.50*
<i>Ability to walk</i>				
Can walk unassisted	1	1	1	1
Walk unassisted, but not long distances	0.91	0.91	0.90	0.89
Can walk, but restricted mobility	0.39**	0.38**	0.42	0.51
Usually use a wheelchair, but operate it independently	0.84	0.84	0.77	0.77
Dependent on a wheelchair that has to be operated by others	0.23***	0.23**	0.20***	0.47
<i>Amount of compensatory cash benefit</i>				
Low (14,260)	1	1	1	1
Medium (46,598)	0.21***	0.28***	0.29***	
High (94,107)	0.08***	0.16***	0.19***	
Family variables				
<i>Family type</i>				
Lives with both parents	1		1	1
Lives with one parent	0.73		0.91	0.99
<i>Mothers' educational attainment</i>				
Primary school	1		1	1
Secondary school	1.14		1.01	1.04
University/tertiary education	1.37		1.13	1.00
<i>Parents' income level</i>				
Low (1 quartile, 434,966)	1		1	1
Low/medium (2 quartile, 591,004)	1.23		1.17	1.39
Medium/high (3 quartile, 6900,086)	1.19		1.12	1.14
High (4 quartile, 1024,815)	1.68		1.63	1.62
Geographical context				
<i>Average educational level in resident municipality, percentage of residents with a university education</i>				
Low, up to 18.6%	1		1	1
Medium, 18.7–26.6%	1.14		1.17	1.30
High, 27% and above	1.31		1.29	1.40
<i>Inclusion in regular classroom education</i>				
In a regular class all of the time	1			1
In a regular class at least half the time	0.41***			0.49**
In a regular class less than half the time	0.06***			0.10***
In a special school	0.07***			0.07***
Log likelihood	–	–265,53	–253,78	–226,99

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 6. Logistic regression analysis. Probability of visiting friends in their own home after school at least once a week.

	Adjusted odds-ratio for each group of variables	Model 1 adjusted odds-ratio	Model 2 adjusted odds-ratio	Model 3 adjusted odds-ratio
Individual variables				
<i>Grade in primary school</i>				
1–4	1	1	1	1
5–7	0.57	0.57	0.57	0.55
8–10	0.47*	0.47*	0.45*	0.54
<i>Ability to walk</i>				
Can walk unassisted	1	1	1	1
Walk unassisted, but not long distances	0.81	0.81	0.81	0.73
Can walk, but restricted mobility	0.18***	0.18***	0.18***	0.19***
Usually use a wheelchair, but operate it independently	0.21***	0.21***	0.18***	0.15***
Dependent on a wheelchair that has to be operated by others	(Omitted ^a)	(Omitted ^a)	(Omitted ^a)	(Omitted ^a)
<i>Amount of compensatory cash benefit</i>				
Low (14,260)	1	1	1	1
Medium (46,598)	0.13***	0.20***	0.21***	0.31**
High (94,107)	0.01***	0.05***	0.06***	0.12*
Family variables				
<i>Family type</i>				
Lives with both parents	1		1	1
Lives with one parent	0.77		0.99	0.94
<i>Mothers' educational attainment</i>				
Primary school	1		1	1
Secondary school	1.12		0.99	1.09
University/tertiary education	1.15		1.12	0.95
<i>Parents' income level</i>				
Low (1 quartile, 434,966)	1		1	1
Low/medium (2 quartile, 591,004)	1.19		0.90	1.05
Medium/high (3 quartile, 6900,086)	1.16		1.00	0.99
High (4 quartile, 1024,815)	1.33		1.00	1.00
Geographical context				
<i>Average educational level in resident municipality, percentage of residents with a university education</i>				
Low, up to 18.6%	1		1	1
Medium, 18.7–26.6%	1.02		1.06	1.11
High, 27% and above	0.88		0.81	0.80
<i>Inclusion in regular classroom education</i>				
In a regular class all of the time	1			1
In a regular class at least half the time	0.25***			0.33***
In a regular class less than half the time	0.01***			0.03***
In a special school	0.05***			0.10**
Log likelihood	–	–173.32	–165.70	–145.71

^aAll of the children (77 observations) dependent on a wheelchair operated by others were in the category that did not visit other friends at least once a week, and were deleted from the analysis.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

the amount of compensatory benefit. The association between the level of inclusion and social participation is relatively stable, and not altered by the inclusion of other variables.

A more diverse picture is evident for participation in organised leisure activities. A social gradient involving parental education, family income and place of residence has an impact on the children's chances of participating in organised leisure activities. These results suggest

that children with disabilities are vulnerable to inequalities in the overall social structure, although comparative evidence is scarce.

At least two questions arise: what are the mechanisms involved, and is it necessarily the segregation practices that have the sole responsibility for the poor social participation experienced by these children? Without physically being a part of what is going on in the classroom – and perhaps even more importantly, the transitions and pauses between the formal activities of the school day – chances to meet and make appointments with peers are restricted. However, there might be more to this picture than simple physical prerequisites for social interaction. As pointed out by Wendelborg and Tøssebro (2010), the very nature of segregation practices established by the school authorities signal to the surroundings that integration is not necessarily the desired goal. If the school authorities decide not to integrate these children, it is likely that the children will follow the adult example. When the parents are less aware of the presence of children with disabilities, they are less likely to be acquainted with their parents.

Nevertheless, school segregation cannot be the only source responsible for the social exclusion experienced by these children and families. In Norway, children with more severe functional limitations are entitled to free public transportation. However, the child is only permitted to be transported to their own home, and peers are not allowed to join. It seems plausible that this lack of flexibility can have something to do with the very low rates of participation experienced by children dependent on a wheelchair (Table 5).

The relationship between parental education and participation in organised leisure activities can have something to do with middle-class values, with a relatively strong orientation toward friendship and parental networks, and less reliance on family (Lareau 1987). A recent Norwegian study suggests that working-class parents take a more relaxed approach to the intensity and parental involvement in organised sport activities (Stefansen, Smette, and Strandbu 2016). That the children of parents with a primary education participate less can also have something to do with the flexibility of the working regimes facing parents with different educational backgrounds. Parents with a primary education may have less flexibility, and may not be equally capable of taking part in the practicalities and arrangement of leisure activities.

Income is an important determinant in the participation in organised leisure activities. Leisure activities can be costly, and it seems likely that the time constraints and expenses involved in the travel back and forth to these activities will have implications for the financial situation of the family. If the child has a functional limitation, it will be more difficult to cooperate with other parents. A previous Norwegian study on family income inequalities and youths' participation in leisure activities found only weak associations (Sletten 2010), though the situation can be very different in the context of children with disabilities.

Social background, in the form of a general educational level in resident municipality, also affects the probability of participation in organised activities. As families' income and parental background are accounted for, a contextual explanation seems reasonable. Areas with a high overall educational level might have a larger plethora of activities to choose from, so middle-class parents are perhaps more likely to be engaged in lobbying local municipalities for leisure activities and facilities.

Limitations

This study deals with children with physical disabilities, and is not necessarily representative of other disabilities. A reliance on the cash-benefit register has a number of advantages, including a low-cost opportunity to identify specific diagnostic nationwide, and add information from other public registers. However, we cannot know whether all individuals who fulfil the criteria for access to benefits actually receive benefits. Chances are that the 'bureaucratic competence' of families influences the chances of applying for benefits, or the chances of succeeding with the application process. The implication is a possibility for bias, in which families in the most vulnerable positions are under-represented in the sample.

The mechanisms responsible for the empirical associations between school segregation and social participation will be in need of further interpretation and complementary analyses. Several important actors were not a part of the analysis, actors that could have shed important light on the possible mechanisms at work. These actors include the voice of children with and without disabilities, as well as teachers and special educators.

Conclusion

Qualitative investigations suggest that children with disabilities have a strong desire to be included in learning activities, and that frustration followed when they were excluded from common participation with their peers (Asbjørnslett, Engelsrud, and Helseth 2015). Yet, while probably not intended, segregation practices effectively limit or even prevent children with physical disabilities from engaging in a wider social setting. The very same welfare state practices responsible for integrating children maintain institutional arrangements that effectively exclude children with disabilities from participating in mainstream society. The findings presented in this article suggest that a worthwhile development goal is to limit the amount of segregation to less than half the time. Another possible policy implication relates to the relatively low level of participation in organised leisure activities for children from low-income families. These results raise the question whether the compensatory cash benefits are sufficient in order to achieve their compensatory objective.

The long-term negative consequences of segregation practices have previously been studied in two separate studies, addressing former special needs students and their ability to complete upper secondary education (Myklebust 2002), in addition to their likelihood of achieving economic independence in their late 1920s (Myklebust and Båtevik 2009). Comparing students taught in ordinary classes and students receiving education outside ordinary classes, outcomes were more positive for the former group when controlling for variations in the level of functional difficulties.

I will argue that the policies which aim at social inclusion in younger ages are likely to have both potential long-term benefits and short-term improvements of the living conditions of children with disabilities.

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The quality of experience of students with and without special educational needs in everyday life and when relating to peers

Carmen L. A. Zurbriggen, Martin Venetz and Chantal Hinni

ABSTRACT

The aim of this paper is to investigate the quality of experience of students with and without SEN in everyday life in general and when relating to peers in particular: (1) How do they experience everyday school life vs. leisure time? (2) How much time per week do they spend with peers outside school? and (3) How do they experience those peer contacts? The data comprised 120 grade 8 (20%) and grade 9 (80%) students from the German-speaking part of Switzerland, with a mean age of 15.8 years ($SD = 0.8$ years). Of these students, 42 were diagnosed with SEN, of which 32 were taught in regular classes and 10 in special classes. Students were asked to report their current affective states on about 31 randomly selected occasions during one week, with a total of 3758 'snapshots' of their activities and their emotional experience in everyday life. Data were collected using the experience sampling method. Momentary affective states were measured by the PANA short-scales. The findings show, first, that students with and without SEN from regular classes interact as often with peers during leisure time, while students with SEN from special classes are presumably more likely to interact with family. Second, adolescents experience leisure activities more positively than instruction. Third, social interactions generally have a positive effect on the quality of experience. The quality of experience is especially good for teenagers when they are with peers – best with peers during leisure time. There are no differences between the student groups.

A central, if not the main, goal of inclusive education is to support participation of all students in common activities. Students diagnosed with special needs get specific attention since they are commonly more often at risk to be socially less integrated as their peers (e.g. Koster, Pijl, Nakken, and van Houten 2010). This not only concerns social participation in school contexts, but also later in society at large. Regular classes in general education strive for the long-term goal of social participation through exemplary action. Participation in school contexts is thus understood as both a means and an end (cf. Imms et al. 2017).

Social participation not only concerns educational contexts, but also extracurricular activities and different aspects of everyday life. In early teenage years, get-togethers with peers become more important (Rubin, Bukowski, and Parker 2006). Participation of teenagers in everyday situations is seen in their leisure activities as well as in contacts with peers in the neighbourhood. This is not only about the quantity of common activities or contacts, but also about their quality. In other words, apart from the frequency of participation or attendance, the extent of involvement is important for experiencing participation in everyday activities. An important indicator of this is the quality of emotional experience.

The goal of this paper is thus to examine social participation in everyday activities of students with special education needs. Specific attention is paid to the subjective quality of experience during activities with peers.

Participation in everyday life

The concept of participation in everyday life and common activities in regular fields is already found in the well-known normalisation principle, which was advanced in the 1970s as a guiding principle (for an overview see, Flynn and Lemay 1999). Originally the term was coined to understand and question life conditions of people with intellectual disabilities. Bengt Nirje, the most well-known co-founder, describes its features as follows:

The normalization principle means making available to all persons with disabilities or other handicaps, patterns of life and conditions of everyday living which are as close as possible to or indeed *the same as* the regular circumstances and ways of life of society. (Nirje 1985, 67)

In the second of eight elements of the normalisation principle, the possibility for activities in a 'normal' weekly rhythm is postulated. The importance of leisure activities outside institutions and homes i.e. in regular societal settings is underlined, since this is where social learning and orientation as well as the opportunities for social relationships can take place. Through activities in regular or common settings, realistic experiences are facilitated, which then support personal development (Nirje 1969).

According to Wolf Wolfensberger, the greater goal of the normalisation principle is the establishment, support and protection of 'valued social roles for people who are at risk of social devaluation' (Wolfensberger 2011, 435). Normalisation is thus demanded for all people, under the risk of social discrimination or degradation and not only for those labelled with 'intellectual disability'. A two-pronged strategy is considered expedient since both individual and contextual or cultural differences are taken into account. On the one hand, societal perceptions and values considering the devalued person or social group are to be changed, so that they are no longer seen as devalued. On the other hand, competencies of the person concerned are to be improved. Possible implications are, e.g. the proximity to other sites, challenging environment, enhancing group composition as well as enhancing social participation (cf. Wolfensberger 2011, 438). These are implications, which concern children and teenagers in educational settings as well as extracurricular contexts.

Social participation in the context of regular secondary education

Most of the studies on social participation of children and teenagers with special education needs so far focused on participation in school contexts, mainly primary education. Only

gradually, while inclusive settings become more common, does the lower secondary level get more attention (Bossaert et al. 2015).

The passage from primary to secondary is well-known as an area of concern since teenagers are challenged considerably by inherent changes (Humphrey and Ainscow 2006). In the transition, one's academic reference group and environment is exchanged for another. Furthermore, on the secondary level, relative ability and social norms weigh more than on the primary level and students are expected to study increasingly autonomously (Carter et al. 2008). At the same time, the passage coincides with early adolescence, which is a time of less positive emotional states and relative instability (Larson et al. 2002). Additionally, vertical relationships with adult caregivers are exchanged for horizontal relationships as social interaction with peers and peer affiliation become more important (Hartup 1989). Lastly, peers play an important role when it comes to academic motivation (Ladd, Herald-Brown, and Kochel 2009).

In a hierarchically differentiating academic system such as in Switzerland, students with special educational needs (SEN) are particularly at potential risk in the transition from primary to secondary level. During allocation to different educational tracks, among others, there is an increased probability of being assigned to a school type with lower requirements or to a separative school type (e.g. classes with a special curriculum). The consequences for further education and professional career are usually far-reaching (Felkendorff and Lischer 2005). However, the type of school also has a more direct effect on various aspects of social participation. But, the findings are inconsistent because of different operationalisations and the often-missing control groups. With regard to the social position, students with SEN generally seem to be 'worse off' compared to their classmates in regular school classes (review of Ruijs and Peetsma 2009). According to a meta-analysis by Oh-Young and Filler (2015), more inclusive settings with regard to effects on social skill outcomes of students with disabilities are generally superior to the less inclusive or rather separative settings.

The different conceptual uses led Koster and colleagues (2009) to a systematic clarification in a literature analysis of studies on the social dimension of inclusion in elementary or primary regular education. The authors identified four key themes of social participation: friendship/relationship, interactions/contacts, perceptions of students with SEN and acceptance by classmates.

For secondary regular education, the findings are basically similar to those for primary regular education (cf. Schwab 2015). According to a literature review by Bossaert et al. (2013) – along the four key themes of Koster and colleagues – students with SEN often have less social contacts with their peers, are less popular and are more often rejected than their classmates. At the secondary level, the problem seems to exacerbate compared to the primary level (Pijl, Frostad, and Flem 2008). Furthermore, students with SEN generally have a lower social self-concept (Pijl, Skaalvik, and Skaalvik 2010) and somewhat lower self-perceptions of social inclusion (Schwab et al. 2015).

In studies so far, the focus was on social participation within the school. According to the current state of research, everyday activities in peer-context do not seem to have been considered as a comparison.

Measurement of quality of participation

In the study of participation in everyday life, the quantity of participation is often targeted in the sense of attendance, but (much) less the quality in the sense of involvement (Granlund 2013). According to a review by Imms and colleagues (2016), involvement contains the sub-topics affect, motivation and social connection. The subjective view is, therefore, usually required for the assessment of involvement. Along with the change from adult to peer-focused relationships, valid self-reporting tools are prerequisite, with which the various activities in different social contexts can be collected (Raghavendra 2013). The expression of an adolescent's emotional experience corresponds to the involvement in the respective activity during a specific situation and thus also provides information on the subjective quality of social contacts.

As self-reporting tools, conventional questionnaires are usually used. But there is only a small selection of questionnaires for the study of social participation in everyday and leisure activities, which can be filled in by teenagers with an intellectual disability themselves. Moreover, their psychometric properties have not been or insufficiently tested (Rainey et al. 2014). According to the review by Rainey et al., the only self-administered and at the same time most frequently used questionnaire is the Children's Assessment of Participation and Enjoyment (CAPE) and its companion measure Preferences for Activities of Children (PAC; both by King et al. 2004). The CAPE/PAC is intended for the age of 6 to 21 years and has also been translated into German (Fink et al. 2016). The revision of the German version showed that the internal consistency of the scales is not optimal and thus comparable to those from other studies (cf. Rainey et al. 2014). The test-retest reliability for the CAPE was also not satisfactory. A further criterion is its length (Fink et al. 2016). A general criticism of conventional questionnaires is that the self-reports, for example, on everyday activities, are retrospectively called and are therefore susceptible to recall bias (Stone and Litcher-Kelly 2006). In addition, the dynamic interplay between activity, the social environment and the subjective experience cannot be recorded at the moment.

One way to counter these methodological shortcomings is to use the Experience Sampling Method (ESM; Hektner, Schmidt, and Csikszentmihalyi 2007). The ESM belongs to a group of methods for the investigation of daily life with the common criteria: data sampling in real-life context, in real-time and on repeated occasions (Mehl and Conner 2012). The multiple *in situ* measurements are carried out over a relatively short period of one week or several weeks – which is why this method group is also called intensive longitudinal methods (e.g., Venetz and Zurbriggen 2015). The ESM therefore has high ecological validity. At the same time, their use is associated with increased efforts for researchers and participants, which can be reduced through the use of new technologies (e.g. smartphones with online functions or applications).

The ESM has already been widely used for research on education (e.g. Shernoff, Knauth, and Makris 2000), but less for research on participation. In a study by Seekins and colleagues (2007), five (adult) participants were asked at six times a day, for a total of seven weeks, their current location, activity and who is involved, and how fulfilling the activity was. In the ESM survey conducted by Shernoff and Vandell (2007), 165 high school students recorded at 35 non-school hours during one week, which was their primary activity with whom they exercised this activity as well as further details on this activity, e.g. how they felt. In a study by Zurbriggen and Venetz (2016), approximately 700 students from 40 classes of the 6th grade

reported at 14 times during a school week, among other things, on their current activity, the social context and their immediate emotional experience.

Emotional experience or affective states can be described by means of the two main dimensions valence (positive – negative) and activation (high – low). Prominently represented in the literature is the Circumplex model by Watson and Tellegen (1985), in which the original axes are rotated by 45 degrees and the two resulting dimensions are referred to as positive activation and negative activation (Yik, Russell, and Barrett 1999).

Research questions

Against the backdrop of these explanations, two questions will be clarified in this paper:

- (1) In the context of the first question, the activities of teenagers with and without SEN in their everyday lives as well as the social context are illuminated: What activities do teenagers do and how often in their leisure time? How much time do teenagers spend with their peers and family? Does the everyday life of teenagers with and without SEN look different? With regard to the normalisation principle, students with SEN in regular classes are expected to engage in similar activities in their free time and are as often associated with peers as students without SEN. In addition, students with SEN in special classes are expected to spend less time with peers than students with SEN in regular classes.
- (2) While quantitative aspects are taken into account in the first question, the second one is centred on the quality of the experience in the everyday life of the teenagers. Therefore, special emphasis is placed on the comparison of students with and without SEN: The following questions are to be clarified: Do teenagers experience school time and leisure time differently? How are performed leisure activities experienced? What is the significance of the social context for the quality of experience? Are there differential effects? Based on previous findings, it can be assumed that teenagers generally experience leisure time more positively than school time and social interactions with peers are particularly positive. No differential effects are expected.

Method

Sample and data basis

The sample comprised a total of 120 Swiss teenagers (41% female) from 71 classes of the eighth (20%) and ninth grade (80%). The average age was 15.8 years ($SD = 0.8$). In 18 female and 24 male students ($n = 42$) special educational need (SEN) was formally diagnosed during the primary school or shortly after the transition to the secondary school (7th grade). Of the 42 teenagers with SEN, 32 were taught in regular classes; 10 attended special classes. Based on these characteristics, three groups of adolescents were distinguished for the analyses: Adolescents without special needs ($n = 78$), adolescents with SEN in regular classes ($n = 32$) and adolescents with SEN in special classes ($n = 10$). The three groups differed neither in terms of gender distribution ($\chi^2 [2, n = 120] = 0.39, p = .875$) nor in terms of linguistic origin ($\chi^2 [4, n = 119] = 7.49, p = .110$) or socio-economic status ($F [2, 114] = 0.66, p = .517$).

Within the scope of the ESM survey, a total of 3930 protocols on current events as well as on their current affective state were gathered in their everyday lives. 172 protocols (4.4%), which were completed more than two hours after receiving a signal, were not considered for the analyses. Thus, the database comprised a total of 3758 protocols from 120 adolescents (on average 31.3 protocols per adolescent). The response-rate (74.6%) of the three groups of adolescents was not significantly different, $F(2, 117) = 0.01, p = .999$.

Procedure

The participating teenagers were recruited from a sample of over 300 students who had participated in a longitudinal study. In the context of a conventional survey, the teenagers could express their interest in participating in an ESM survey. From over 200 interested students, 120 adolescents were selected in such a way that the group of students with SEN and the group of students without SEN are as comparable as possible with regard to gender and linguistic origin. To obtain self-reports for representative samples of moments in the adolescents' daily lives, a time-based sampling design with a variable schedule was used (Bolger, Davis, and Rafaeli 2003). On seven consecutive days (one week), the participants received 6 daily signals from Monday to Friday between 7 am and 9 pm and on Saturday and Sunday between 10 am and 10 pm. The signals were distributed throughout the day. Thus, for example, during the weekend, the first signal came randomly between 10 am and 12 pm and the second randomly between 12 pm and 14 pm. A smartphone served as a signal generator, which was made available to the teenagers for the duration of the investigation. The responses were recorded online via smartphone. Responding to a questionnaire took three to four minutes. 78% of all questionnaires were answered within 10 min after receipt of the signal, 88% within 30 min.

Measures

The momentary affective state was recorded with each four items on the scales Positive Activation (PA) and Negative Activation (NA) by Schallberger (2005). One item example for PA is *excited vs. bored*, one for NA is *stressed vs. relaxed*. Operationalization is based on the Circumplex model of affective states of Watson and Tellegen (1985). According to Watson et al. (1999), PA and NA represent '... the operation of two broad, evolutionarily adaptive motivational systems that mediate goal-directed approach and withdrawal behaviours' (829–830). PA reflects the amount of energy and positive attention, whereas NA is the extent of unpleasant activation, which seeks dissolution. In the present study, the reliability (ω) of the two scales is both on the within-subject level (PA: .79; NA: .76) as well as on the between-subject level (PA: .93; NA: .89) satisfactory.

Activities as well as social interactions were covered by several branched questions. At first, the teenagers were asked whether the signal came during lessons or during leisure time. If in class, the teenagers were asked to indicate their current form of activity. In response, the categories *alone, in pairs, group work, class discussions, examinations and listening (teachers, classmates)* were available. If the teenagers were given a signal during their free time, they were asked to indicate whom they were with. Answers could be chosen among the following categories: *Partner, friends, classmates, family and other persons*. To record the current activity, the teenagers selected from a list of (groups of) activities. In situations in which

the current activity could not be assigned to a response, the teenagers could briefly describe their current activity in an openly formulated question.

Based on this information, two variables were created for the analyses: (a) The variable *time category*, which was used to distinguish between teaching and leisure time, and (b) the variable *social interaction* with the three categories *alone (on task)*, *with peers* and *with family*. In school context *alone (on task)* means that they worked individually, wrote an examination, or listened to the teacher or a classmate. In leisure time *alone (on task)* does not mean that they were alone, but that they did not interact with anyone (e.g. riding the train).

Analyses

To clarify the first question, by means of SPSS version 24 the data were aggregated on the characteristics of the current context (time category and social interaction) as well as the activities performed per person. These data inform about individual distributions of the time points on different contexts and activities during a week.

To answer the second question, based on the hierarchical structure of the data (occasions are nested in persons) two-level models were specified in *Mplus* version 7.4. Level 1 (within) includes the 3758 time-points, Level 2 (between) the 120 teenagers. Effects of the characteristics time category and social interaction on the quality of experience were specified at Level 1; differential effects were examined within the scope of multiple-group analyses.

Results

The results show that overall, an average of 28.6% ($SD = 9.3\%$) of the time points are during lessons and 71.4% ($SD = 9.3\%$) during leisure time. Corresponding estimates show that on average students spend approximately six hours at school on a normal school day. The proportion of time points for school teaching differs not significantly between the three groups of adolescents, those with no special educational needs, those with SEN in regular classes, and those with SEN in special classes, $F(2, 117) = 2.59, p = .080$.

If one focuses on social interactions in leisure time, it can be said that the teenagers are on average of 51.9% ($SD = 16.9\%$) of all time points alone (on task). Of the 48.1% of time points in which interactions take place, 25.6% are attributable to those with peers in and outside school, 22.4% to those in the context of the family. In summary, it can be said that teenagers interact with peers and with family equally frequently.

The central results for the first question, whether teenagers with and without SEN often interact with other people during leisure time, are illustrated in the form of box-whisker diagrams in Figure 1. The diagrams provide two essential insights: Adolescents with SEN in regular classes interact during leisure time with peers as much as with family on the average. In contrast, adolescents with SEN in special classes tend to interact during leisure time more often with family and somewhat less often with peers (or alone on task). One-factorial variance analyses thus show that teenagers with SEN in special classes interact significantly more often with family members, $F(2, 117) = 5.42, p = .006, \eta^2 = .09$.

Figure 1 also makes it clear that there are large differences in the frequency of interaction among the three groups of teenagers: For interactions with peers, the interquartile distances (i.e. the height of the grey box in Figure 1) are .22 (without SEN), .24 (with SEN in regular class), and .31 (with SEN in special class). For students without SEN, this means that half of

Figure 1. Frequency of social interactions during leisure time of adolescents with and without SEN.

them spend between 14% and 36% of their leisure time with peers. The 'whiskers' (the vertical lines below and above the box) show that on the one hand, 25% adolescents spend between 36% and a maximum of 67% of their leisure time with peers, and on the other hand, 25% adolescents in leisure time are never or relatively seldom (0–14% of all time points during leisure time) with peers.

Figure 2 gives an overview of the frequency and quality of the experience of the adolescents' daily activities. A one-factorial, multivariate variance analysis reveals that adolescents

Figure 2. Frequency of activities in daily life of adolescents and the quality of experience.

with and without SEN do not significantly differ in how much time they use in their everyday life to perform certain activities (Wilks $\Lambda = .877$, $F [14, 105] = 1.05$, $p = .410$). Therefore, the results are described in general rather than group-specific. If one looks at the frequency of the activities performed (box plots on the left-hand side of Figure 2), one can find that teenagers spend almost 30% of their daily lives at school. Watching TV shows or surfing the Internet are the most frequently performed activities with 8.2% of all time points, followed by 'socializing' (7.8%), 'eating' (6.4%) and 'en route' (4.4%). It is also clear from this figure that there is a large difference between the teenagers in the number of times a particular activity is performed. In more than half of the teenagers, there was not a single signal when exercising a sports activity, listening to music, using social media or exercising a hobby.

The bar plots on the right-hand side of Figure 2 provide information on how these activities are experienced by teenagers in general. (The values shown are mean values of individual z-standardised values aggregated at person level). With regard to PA, it can be said that above all sporting activities as well as hobbies are sources of positive activation, but so also are socialising and being en route. In contrast, thinking and relaxing are activities that are linked to feelings of slack and boredom. Homework and chores are activities associated with a high negative activation (NA). Watching TV or surfing the Internet, socialising as well as listening to music are activities that obviously have a relaxing effect on teenagers. At the same time, PA and NA point out that sporting activities, hobbies, socialising and being en route are activities with a particularly good quality of experience (much PA, little NA).

The descriptive findings on the quality of experience of different everyday activities are a good introduction to the second question: Do daily social interactions have the same effect on the current affective state in the everyday life of adolescents with and without SEN? To clarify this, a series of multivariate multiple-group two-level CFA models were specified (Table 1). The main findings can be summarised as follows: The intraclass correlations (*ICC*) vary between .13 and .26. Thus, between 13% and 26% of the variance in the PANA-items fall back on person-related differences. Models M1 to M3 were used to test the measurement invariance of the PA and NA dimensions over the three subgroups. As can be seen in Table 1, the models have a good fit and the constructs are factorially invariant across each group. In a second step, the homogeneity of the variances of PA and NA and their covariance (M4) as well as the equality of mean values of PA and NA (M5) were tested. The results of the analyses show that only one parameter differs between the groups: The intraindividual variability of NA is significantly higher for adolescents without SEN than for adolescents with SEN.

In model M6, the covariates time category (lessons vs. leisure time), two dummy variables peer interaction (no vs. yes) and family interaction (no vs. yes) as well as the interactions between the time category and the dummy variables were included. In model M6a the regression coefficients across each group were equated. The model comparison between model M6a and M6 suggests that there are no differential effects. Overall, it can thus be stated that adolescents with and without SEN experience everyday life in general and daily social interaction specifically in a very similar way.

In terms of content, the findings can be summarised as follows (Table 2): Adolescents with and without SEN feel significantly less strongly negative during leisure time ($\beta = -0.26$, $z = -3.88$, $p < .001$), but they do not experience significantly more PA ($\beta = 0.13$, $z = 1.70$, $p > .089$). Social interactions with peers as well as with family have a positive effect on the current experience: social interactions are associated with more PA (peers: 0.43, $z = 5.29$,

Table 1. Model fit statistics for the subgroup comparisons of current emotional experience (PA and NA) and covariates.

Model	<i>df</i>	$\text{MLR-}\chi^2$	CFI	TLI	RMSEA	SRMR _{w/B}	Model test	$\Delta\text{MLR-}\chi^2$	Δdf	<i>p</i>
<i>Measurement invariance</i>										
M1	100	249.53*	.977	.962	.035	.030/.158				
M2	134	289.78*	.976	.970	.030	.030/.150	M2 vs. M1	33.92	34	.471
M3	146	311.33*	.975	.971	.030	.034/.145	M3 vs. M2	20.17	12	.064
<i>Homogeneity of factor (co-)variances/means</i>										
M4	158	329.83*	.974	.972	.029	.045/.153	M4 vs M3	22.06	12	.037
M4a	157	308.79*	.977	.975	.028	.040/.153	M4a vs. M3	2.28	11	.552
M5	160	315.70*	.976	.975	.028	.040/.157	M5 vs. M4a	6.96	3	.073
<i>Equality of regression coefficients</i>										
M6	232	445.12*	.971	.967	.027	.035/.155				
M6a	270	457.61*	.972	.970	.026	.039/.152	M6a vs. M6	13.60	16	.628

Note: *N* = 120, CFI = Comparative Fit Index, TLI = Tucker-Lewis-Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square Residual (SRMR_w = within, SRMR_b = between); $\Delta\text{MLR-}\chi^2$ = Nested χ^2 Difference for Maximum Likelihood Procedure with Robust Standard Errors (MLR).

**p* < .001.

Table 2. Unstandardised regression coefficients of current emotional experience on time category (classwork vs. leisure) and social interaction.

	PA		NA	
	Estimate	SE	Estimate	SE
<i>Classwork, no social interaction (reference category)</i>				
Leisure (main effect)	0.128	0.075	−0.264***	0.068
Social interaction with peers (main effect)	0.432***	0.082	−0.287**	0.086
Social interaction with family (main effect)	0.244**	0.085	−0.185**	0.067
Social interaction with peers in leisure (interaction effect)	0.280**	0.097	−0.081	0.102

Note: $N = 120$. PA = Positive Activation, NA = Negative Activation.

** $p < .01$; *** $p < .001$.

$p < .001$, family: 0.24, $z = 2.88$, $p = .004$) and simultaneously with less NA (peers: -0.29 , $z = -3.34$, $p = .001$, family: -0.19 , $z = 2.75$, $p = .006$). Finally, the results show that social interactions with peers during leisure time have a significantly greater effect on PA ($\beta = 0.28$, $z = 2.88$, $p = .004$) than social interactions with peers in the classroom. Overall, the results show that for adolescents with and without SEN, social interactions with peers (both in school and during leisure time), but also with family, have an activating and relaxing effect on the current experience.

Discussion

Summary

The results suggest that students with SEN do not usually spend their everyday life differently than their peers. During almost half of their leisure time, the adolescents either interact with peers or equally with family. They spend quite a lot of time outside school in media consumption, i.e. watching TV and surfing the Internet, or in socialising, i.e. chilling with friends. The most positive experiences are during sporting activities, hobbies and socialising.

Adolescents with and without SEN do not differ in how much time they use in their daily lives for certain activities. However, there are large intraindividual differences regarding the frequency of activities performed during leisure time. Differences between the student groups are seen with focus on social interaction partners: During leisure time, students with SEN in separative settings interact more with their family and less with peers as students without SEN and students with SEN in regular settings. However, due to the small group size of students with SEN in separative settings, the results must be interpreted with reservations.

It is hardly surprising that teenagers experience leisure time in general more positively than school time. However, social interactions have a positive effect on the quality of experience in general – both in leisure time and at school. Particularly good is the emotional experience of adolescents, when they are with peers – best with peers in the leisure time. This also seems to apply to students with SEN in regular or in separative settings.

On the importance of peers for adolescents' everyday (school) life

The realisation that peers play an important role in teenagers' everyday life is trivial. With these findings, however, a somewhat differentiated picture of social participation of adolescents with and without SEN can be distinguished in terms of the subjective dimension.

The importance of peers is reflected in the very positive quality of experience of adolescents during leisure activities, where peers are the social interaction partners. An ESM study from Italy (Bassi and Delle Fave 2004) provided a comparable finding. Such situations are experienced by students without SEN as well as with SEN particularly pleasant. In addition, all the student groups studied tend to experience social contacts with peers in general similar – or in other words, students with SEN generally experience activities with peers no different than other students. The positive quality of experience in social interactions can be seen not only as a reference to a good social participation from a subjective point of view, but also as a basis for the development of a valued social role (Wolfensberger 2011).

Adolescents experience interactions with peers not only during their leisure time as particularly positive, but also in the school context. This finding is to be seen against the backdrop of the fact that schools and school classes do not correspond to a chosen peer context, but at the same time offer a major place for interactions among teenagers (Müller and Zurbriggen 2016). Secondary school thus assumes an important role in the development of social relations and social skills (Hofmann and Venetz 2017). Peer support strategies and arrangements, such as cooperative learning or peer tutoring, which are primarily used to support academic engagement, are also suitable for improving adolescents' social adjustment and participation (De Vroey, Struyf, and Petry 2016; Ladd, Herald-Brown, and Kochel 2009).

The circumstance that students with SEN from separative classes in their leisure time are more frequently associated with family compared to other learners and thus less frequently associated with peers is, however, to be regarded with a view to the normalisation principle rather critically. Especially adolescents with disabilities should be able to have 'normal' social experiences (cf. Nirje 1985).

Limitations and strengths of the study

An important limitation of the study is the already mentioned small number of participants with SEN in separative settings. This reflects a common problem of field studies with students from separative schools. Consequences are, as is known, low statistical power, inflated false discovery rate and reduced likelihood to discover significant effects. The results for students with SEN in separative settings thus have an exploratory character. (At this point it is important to note that the sample is quite large on the within-group or occasion level.)

Since the group of students with SEN in regular schools was only 32, it was also not possible to differentiate between the type of special needs education. According to results of Venetz et al. (2012), the emotional experience of differential effects for students with learning difficulties or with behavioural difficulties would have to be considered. For example, the emotional experience of students with behavioural difficulties fluctuated more widely over different teaching situations, and they were generally more stressed than their classmates. In the interpretation of the results, it should also be noted that explicitly, SEN was used as a 'status' for the formation of groups (and not standardised tests), since this should be decisive

in practice. However, due to different methods of diagnosis, the students with this official label are not comparable across different schools, municipalities and cantons.

One of the strengths of the study is the adequate and at the same time innovative methodological approach to this phenomenon. With ESM, activities, social interactions and other characteristics of a situation can be directly accounted for by the adolescents themselves. ESM therefore has high ecological validity and provides a promising alternative to the assessment of subjective quality of social participation. Furthermore, it allows the investigation of complex relationships between personal and contextual features of social interactions.

A further benefit of the study is its focus on secondary school, considering the fragmented inclusion research at this school level (De Vroey, Struyf, and Petry 2016). With the results on the quality of experience of teenagers both during lessons as well as in leisure time and the social context in particular, the study can contribute to a more comprehensive picture of the subjective quality of social participation in the everyday life of adolescents – not least of those with status SEN.

Further studies

Although during civil rights declarations (United Nations 2006) the right of social participation for everyone has become an internationally recognised standard, and participation has become increasingly the focus of researchers, there is still a great need for research around the multidimensional construct of social participation (Granlund 2013).

In addition to the results obtained, one could also examine whether the adolescents surveyed during leisure time are mainly with their classmates or with other peers. Moreover, increased sophisticated analyses could provide insight into the quality of interaction in specific everyday situations (e.g. socialising). When planning a further study, it should be noted that a more balanced and larger sample (especially students from special classes) should be considered.

An addition to the ESM with observing procedures would be a gain for further research on the quality of social participation, in order to contrast the subjective view with an external perspective. To combine ESM with methods for detection of social networks such as social cognitive mapping, with which the identification of different peer groups and their group structure is possible (Pijl et al. 2011), is also of interest.

Finally, it is necessary to examine how the subjective social participation in the everyday life of adolescents – with or without SEN – develops in the course of secondary education and in transition to further schools or into the professional world.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Social participation and friendship quality of students with special educational needs in regular Greek primary schools

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ABSTRACT

The study addresses the social participation of integrated students with special educational needs (SEN) in upper primary regular classes in Greece alongside their perceptions of best friend quality. Social participation was defined as consisting of four key dimensions: students' acceptance by classmates, friendships, social self-perceptions, and social interactions. Participants were 457 students with a mean age of 11.04 ($SD = .83$), of which 45 were diagnosed as having moderate learning difficulties. Fieldwork involved implementing a sociometric technique, conducting systematic observations and administering two psychometric instruments: the Self-Description Questionnaire (SDQ) and the Friendship Qualities Scale (FQS). In line with previous studies, students with SEN received fewer nominations of peer acceptance, had fewer friends and fewer social interactions with classmates than their typically developing peers. The social self-perception and the perceptions of friendship quality of both groups of students did not differ. Contrary to expectations, the social self-concept of students with SEN was not related to their acceptance by peers but it was positively related to the 'companionship' dimension of friendship quality. These results highlight the need to direct the researchers' attention from measuring the social participation of students with SEN within their class network towards examining the quality and durability of their friendships.

Introduction

The inclusion of students with Special Educational Needs (SEN) in regular schools has been increasingly promoted in many countries on the assumption that inclusive schools are the most effective means for reducing prejudice, and combating discriminatory attitudes. It is hoped that within such a welcoming and supportive context, students with SEN will not only receive education tailored to their individual needs but will also build positive relationships with their typically developing peers in order to become valued members of the school community. However, this process is not without its challenges, as integrated students with

SEN are often found to be facing difficulties interacting with other peers and experience marginalisation and loneliness in the classroom (Schwab 2015a).

International sociometric studies have repeatedly reported that integrated students with SEN in regular primary schools are less accepted and more rejected by their classmates without SEN and have fewer stable friendships than their peers (Avramidis et al. 2017). Based on different student groups and using different disability definitions, many studies have concluded that students with moderate or severe learning difficulties run a higher risk of being socially isolated than their typically developing peers in regular education (Koster et al. 2010; Schwab 2015b). Similarly, it is consistently reported that students with behavioural difficulties (Krull, Wilbert, and Hennemann 2014) and students with autistic spectrum disorders (Symes and Humphrey 2010) experience more difficulties in building relationships with peers. Strikingly, such negative findings have been reported across different national school systems including the UK (Avramidis 2013), Canada (Kuhne and Wiener 2000), US (Estell et al. 2008), Norway (Pijl, Frostad, and Flem 2008), the Netherlands (Koster et al. 2010), Italy (Nepi et al. 2013) and Germany (Krull, Wilbert, and Hennemann 2014). Therefore, it is unlikely that cultural characteristics or national education systems account for these findings.

Although longitudinal studies are scarce in the field, it is worrying that the poor social acceptance students with SEN enjoy within their class network may deteriorate over the course of a school year. For example, in Kuhne and Wiener's (2000) Canadian study of 9- to 12-year-old students, those children with learning difficulties who were found to possess average social status at the beginning of the school year were more likely than their typically developing peers to change their status to 'neglected' or 'rejected' social status at the end of the year. Similarly, Frederickson and Furnham (2001) investigated the longitudinal stability of sociometric classification in students with moderate learning difficulties (MLD) aged 8–10 years in an English county over a two-year period. They found that students with MLD on both occasions were less likely to be classified as 'popular' and more likely to be classified as 'rejected'. More importantly, their sociometric status had remained fairly stable over the two-year period.

One explanation for the difficulties students with SEN have in building relationships with typically developing classmates points to insufficient sets of age-group appropriate social skills, which prevents them from successfully interacting and ultimately bonding with peers (Pijl, Frostad, and Flem 2008). Consequently, students with SEN end up occupying a low social position in their class network, which, in turn, can have a negative impact on their social self-concept. However, this conclusion is far from clear-cut; while some research studies have found students with SEN to possess lower social self-concept compared to their typically developing peers (Pijl and Frostad 2010; Schwab 2015b) other studies failed to detect such a difference (Avramidis 2013).

Surprisingly, the literature contains studies that found students with SEN to hold positive perceptions of social self-concept alongside independent evidence of reduced acceptance by peers (Koster et al. 2010; Avramidis 2013) – a trend which has led some authors to conclude that an appreciable proportion of students with SEN often do not have accurate perceptions of social acceptance. For example, Pijl and Frostad (2010) have argued that students with moderate to severe learning disabilities: '... are less capable of understanding their level of acceptance and the quality of their friendships in the typical peer group. Thus, they do not experience negative feelings linked to an eventual isolated position in the group to

the same degree and are less likely to develop a low self-concept' (94). By contrast, this conclusion does not apply to students with physical or sensory disabilities who tend to be more aware of their isolated position in the group, and therefore, are more likely to develop a negative social self-concept.

An alternative explanation to this paradox (students with SEN being less accepted than their peers but possessing similar perceptions of social self-concept) concerns the quality of the few friendships students with SEN have formed. For example, in Estell et al.'s (2008) two-year study, students with SEN were found to be less often nominated as being someone's best friend and less often nominated as popular; however, at the same time, they were equally often found to be members of a group within their class and were equally central in these groups. It could, therefore, be suggested that students with SEN might not have many friends but only one or two good ones. However, until now, most studies in the field have focused on measuring the number of friendships students with SEN have within their class network without examining friendship quality. This is certainly a gap in the current knowledgebase given that having high-quality friends might be especially important for students with SEN who experience lower social acceptance and have fewer friends compared to their typically developing peers. Specifically, having one high-quality friend who offers support and affection might not only contribute to the positive social adjustment of students with SEN but also provide protection against victimisation (Bossaert et al. 2015).

To sum up, the research literature shows that the inclusion of students with SEN in regular education settings is far from straightforward. Though the aforementioned studies are also pertinent to Greece, there have been no large-scale systematic studies carried out in Greek settings. It is towards presenting the aims of the present study that we turn next.

The study

The literature on the social development of integrated students with SEN contains numerous studies investigating their social position in their class network and their social perceptions. More recently, Koster et al. (2009) advocated the use of the term 'social participation' as the most suitable one to capture the fullness of the social aspects of inclusion. Koster et al. defined social participation as a complex concept consisting of four key themes, namely: (1) the presence of positive social contact/interaction between these children and their classmates; (2) acceptance of children with SEN by their classmates; (3) social relationships/friendships between them and their classmates; and (4) the social self-concept of students with SEN.

The present study differs from its predecessors in two respects. First, while most sociometric research in the field has investigated one aspect of social participation, the present study examined all four key themes of social participation proposed by Koster et al. (2009). Second, the present study also examined student perceptions of best friendship quality since it represents a variable that has been overlooked in most research in the field including the Koster et al. (2009) model where only the number of friendships held by students with SEN is examined. By adding the measurement of friendship quality the present study aspired to obtain a fuller picture of the social participation of integrated students with SEN thus contributing to the existing body of theorising in the field. The study pursued the following aims:

- To examine the social participation of students with SEN in upper primary regular classes in Greece
- To investigate the perceptions students with SEN hold about the quality of their best friendship
- To examine the relationship between the perceptions of social self-concept of students with SEN and their acceptance by peers as well as their perceptions of best friend quality.

Based on the preceding review of the relevant literature, we formulated the following research hypotheses:

Hypothesis 1: It is expected that students with SEN will be less accepted, will have fewer friendships, and will have fewer social interactions than their typically developing classmates.

Hypothesis 2: It is expected that students with SEN will express equally positive perceptions of best friendship quality to the ones expressed by their typically developing peers.

Hypothesis 3: It is expected that the social self-concept of students with SEN will not be associated with their acceptance by peers in their class but, instead, will be positively related to their perceptions of best friend quality.

Research design

The study adopted a multi-method research design combining a classic sociometric technique with systematic observations and self-report psychometric instruments. Specifically, the peer-nomination technique was utilised to assess the social acceptance students with SEN enjoyed and ascertain the number of friendships they had formed; systematic observations were conducted in the playground to assess their social interactions; and two psychometric instruments were employed to assess the students' perceptions of social self-concept and best friendship quality.

Participants

Fieldwork was conducted in eight primary schools in one region of central Greece. The selection of a suitable sample of schools was informed by the relatively high number of children identified with SEN in the schools' registers. Consequently, purposive sampling was deemed the most promising strategy resulting in the selection of schools which operated 'inclusion units'. It is important to clarify here that the Greek 'inclusion unit' functions as a support room/class and, in this respect, is much closer to the US resource or pull-out programmes, or to what the British describe as part-time withdrawal in a learning support base. According to the Greek legislation, in primary schools operating inclusion units, students accredited with SEN are educated for the most part in the mainstream class alongside their peers and attendance in the inclusion unit is limited to a few hours per week (and no more than 10 h). Students attending an inclusion unit typically have an official diagnosis issued by an external state-maintained diagnostic centre. Inclusion units are run by special educators, whose role involves assessing students' progress, devising individual educational plans and delivering tailored individual support.

All students enrolled in Grades 4, 5 and 6 were invited to participate in the study. To achieve a valid sociometric assessment, we ensured that all students took part in the study resulting in a total sample of 457 children drawn from 26 classes. Approximately 10% of

these students ($N = 45$) had been identified with SEN at that time, a ratio that reflects the national figure. Following conversations with the teaching staff of the eight participating schools and examination of student records, we confirmed that none of the remaining 412 students experienced learning difficulties or any other type of disability. The group of students with SEN consisted of 27 boys and 18 girls while the typically developing group consisted of 202 boys and 210 girls. Contrary to previous sociometric studies where students with different types of SEN are grouped together, in this investigation the group of students with SEN could be regarded as a homogeneous one. All 45 students with SEN had been officially diagnosed by a multidisciplinary team as experiencing learning difficulties of a moderate nature and, to a lesser extent, to students with specific learning difficulties (e.g. dyslexia).

Methods

Assessment of peer acceptance and friendships

Although peer rating techniques have been widely utilised to measure the students' social acceptance within the social network of their classroom, they carry a significant weakness since they might reinforce existing prejudices and potentially demarcate some children as different (Avramidis et al. 2017). For this reason, in the present study we assessed peer acceptance through the classic peer nomination technique which required students to nominate those classmates they considered as friends. The nominations were limited to a semi-fixed choice i.e. asking children to give a maximum of five nominations. Former studies (Koster et al. 2010; Avramidis 2013) have indicated that five friends is a stable option, restricting the freedom of choice for respondents minimally. Following Pijl, Frostad, and Flem (2008) and Schwab (2015b) the number of nominations students received from group members (or 'in degrees' in social network analysis) was taken as an index for peer acceptance. Moreover, in line with previous sociometric studies, friendship was defined as a reciprocated nomination (Koster et al. 2010). A respondent had a friend if the respondent nominated a peer and that same peer nominated him or her as a friend.

Assessment of contacts/interactions

In this study, we adopted an observation scheme developed by Koster et al. (2010) which provides information about the number of successful interactions students initiate or receive in the playground with their peers and their teachers. Also included in the scheme was a category recording aloneness in the playground as a proxy for loneliness. Consequently, the scheme consisted of five discreet categories: (a) target student initiating interaction with peer (b) target student receiving interaction with peer (c) target student initiating interaction with teacher (d) target student receiving interaction with teacher and (e) target student being alone.

Assessment of social self-perception

Having considered relevant instruments in the literature, we selected the Self-Description Questionnaire (SDQ I) developed by Marsh as a suitable instrument for measuring different

facets of self-concept (Marsh 1990). From this instrument, we only utilised the social self-concept scale, an eight-item, five-point, forced-choice Likert scale. The scale contained statements such as: 'I have lots of friends' 'I make friends easily', 'I get along with kids easily', etc. To complete this scale, students were asked to indicate the extent of their agreement with each statement by selecting among the following response choices: False (1), Mostly False (2), Sometimes False/Sometimes True (3), Mostly True (4), and True (5).

Assessment of friendship quality

Students were asked to nominate their best friend and to indicate whether their friend was a member of their class or someone external. The students' choice was not limited to their school (i.e. it could also include somebody from their neighbourhood). With this 'best' friend in mind, students were then asked to complete the Friendship Qualities Scale (FQS), a 23-item psychometric instrument designed by Bukowski, Hoza, and Boivin (1994) which contains five separate subscales tapping into five specific dimensions of friendship quality, namely *companionship* (4 items), *conflict* (4 items), *help* (5 items), *security* (5 items) and *closeness* (5 items). Indicative items of the five dimensions are: 'My friend and I spend all our free time together' (companionship); 'My friend and I can argue a lot' (conflict); 'My friend would help me if I needed it' (help); 'If I have a problem at school or at home, I can talk to my friend about it' (security); and 'Sometimes my friend does things for me or makes me feel special' (closeness). To complete the FQS, students were asked to indicate the extent of their agreement with each statement by selecting among the following response choices: Strongly disagree (1), Disagree (2), Neither disagree or agree (3), Agree (4), and Strongly Agree (5).

Procedures

Parental consent was obtained from the parents of all participating students prior to commencing fieldwork. Children completed a questionnaire containing the two psychometric instruments during structured lessons. Particular adaptations were made to enable students with reading difficulties to participate; specifically, for some students the questionnaire was administered individually and the various items were read aloud by an adult. Completion of the whole instrument lasted approximately twenty minutes. Also, included in this questionnaire was a section containing the sociometric assessment. To avoid potential ethical problems inherent in sociometric research, extra care was exercised to ensure that students did not share their friendship nominations.

Systematic observations of the interactions of 22 randomly selected students with SEN were conducted in subsequent weeks so that the students could not relate the presence of a researcher in the school yard to the content of the questionnaire they had completed. In addition, systematic observations of 22 typically developing students were conducted; these students were of the same gender and were randomly drawn from the same classes as the 22 students with SEN. Both groups were observed for 15 min, divided into five-minute periods. In line with Koster et al. (2010), each five-minute period was divided into 30 intervals of 10 s each. If an interaction occurred during that period, a tick was noted in the correct category (initiated interaction with classmate; received interaction with classmate; initiated interaction with teacher; received interaction with teacher). If more than one interaction occurred in a period, only the first one was noted. Observers were the first two authors both

of whom had received training using videotaped recordings prior to commencing fieldwork. One third of the observations (15 out of 44) were conducted by both researchers. The agreement between observers was determined by calculating Cohen's kappa coefficient, a robust measure that takes into account the possibility of the agreement occurring by chance. Cohen's kappa coefficients were calculated for two major aspects: 'interaction/no interaction between student and classmates', and 'interaction/no interaction between student and teacher'. Cohen's kappas for these aspects were .88 and .92, respectively, suggesting very strong agreement.

Data analysis

The number of nominations received (in-degrees) by each student was used as an index of social acceptance. Given that the sizes of the 26 classes varied, we transformed the raw data using the following mathematical formula adopted by Schwab (2015b) which allows relating peer acceptance to the mean peer acceptance of all students in the class:

$$\text{Status of peer acceptance} = 1 + \frac{\text{Number of elections} - \text{mean number of elections of the peers in the class}}{\text{maximum number of elections}}$$

Friendship was defined as a reciprocated choice, implying that two students choose each other as best friends. Given that nominations had been limited to a fixed number of choices (up to 5), we simply calculated the number of reciprocal ties held by each student and proceeded with a statistical comparison between the students with SEN and their peers without any transformation.

Further, following Pijl, Frostad, and Flem (2008), three indices of social inclusion (being accepted by peers, having a friendship, and belonging to a cohesive subgroup) were used to examine the social participation of students with SEN in their class. Students are categorised as socially included if they are accepted by their peers, have at least one mutual relationship, and belong to a coherent subgroup. Wasserman and Faust (1994, 249) define cohesive subgroups as subsets of actors among whom there are relatively strong, direct, intense, frequent or positive ties. A typical example of a subgroup in social network analysis is the 'clique' which requires a subset of a minimum of three actors, all of whom are linked to each other by nominating each other. However, because this definition of a clique is too restrictive, in the present study we adopted the 'n-clique' type as utilised by Pijl, Frostad, and Flem (2008) whereby a cohesive subgroup requires a minimum of three actors, but is also dependent on 'reachability'; that is, the geodesic distance among actors is specified by a cut-off value, which, in the present study was $n = 2$. Accordingly, 2-cliques are sub-graphs in which all members need not be adjacent, but all members are reachable through at most one intermediary. This reflects the study's assumption that an understanding of cohesive subgroups based on indirect connections of relatively short paths better captures the social dynamics of the primary class.

The sociometric data were analysed using the UCINET software (Borgatti, Everett, and Freeman 1999) which enabled us to calculate the in-degrees (nominations) received by each student, their reciprocal choices (friendships) and their participation in cohesive subgroups. The psychometric and the observational data were analysed using the SPSS Version 21 software (IBM 2012).

Results

Prior to conducting our main analyses we examined the factorial structures of the two psychometric instruments employed. With regard to the social concept scale of the SDQ, we conducted principal component analysis with varimax rotation on the eight items comprising the scale. This yielded one component with an eigenvalue of 4.78 which accounted for 53.18% of the extracted variance. The internal consistency of the extracted component was satisfactory with a Cronbach alpha of .83. Following this, the eight items were totalled to create a composite factor named 'social self-concept' with a higher score indicating more positive view of oneself. With regard to the FQS, we also conducted principal components analysis with varimax rotation (on the theoretical assumption that the scale's components would not be highly correlated) on the 23 items of the scale. As anticipated, five components were extracted with an eigenvalue of more than 1 which accounted for 58.9% of the extracted variance. The internal consistency of the extracted components was satisfactory with Cronbach alphas as follows: $a = .76$ for the Companionship, $a = .77$ for the Conflict, $a = .82$ for the Help, $a = .76$ for the Security and $a = .78$ for the Closeness. Following the establishment of the instrument's factorial structure, a composite score for each component was calculated with higher scores reflecting more positive perceptions in the dimensions of companionship, help, security and closeness while the opposite was true in the conflict dimension.

Social participation analyses

As it can be seen in Table 1, students with SEN were found to be less socially accepted and had fewer friendships than their typically developing peers. Likewise, the analysis of the observational data revealed that the students with SEN had fewer interactions with peers than their counterparts without SEN. This finding was true for both the interactions initiated by the students with SEN and for those initiated by their peers (see bottom panel of Table 1). Additionally, the examination of the recorded student–teacher interactions in the playground revealed that the teachers initiated significantly more interactions with the students with SEN than their typically developing peers. Interestingly, there was no difference between

Table 1. Peer-acceptance, friendships, social self-concept and interactions of students with and without SEN.

	SEN (N = 45)		Non-SEN (N = 412)		t-test
	M	SD	M	SD	
Peer-acceptance	.80	.21	1.02	.26	6.34***
Number of reciprocal friendships	1.73	1.48	3.07	1.50	5.71*
Social self-concept	3.77	.84	3.82	.72	.41
	SEN (N = 22)		Non-SEN (N = 22)		t-test
	M	SD	M	SD	
Contacts/interactions					
Peer interaction initiated by target pupil	24.50	13.78	42.45	8.62	5.17***
Peer interaction initiated by peer	21.36	11.86	33.45	5.26	4.37***
Teacher interaction initiated by target pupil	1.55	2.76	.50	1.14	−1.64
Teacher interaction initiated by teacher	2.41	4.75	.09	.42	−2.28***
Pupil being alone	40.18	21.17	13.50	7.65	−5.56***

Notes: Students were observed during free time for 3 five-minute periods. Every period was divided into 30 intervals of 10 s each. Consequently, observation scores could range from 0 to 90.

* $p < .05$; *** $p < .001$.

the two student groups in terms of the interactions they had initiated with the teachers. Finally, the students with SEN were more often recorded to be alone than their peers without SEN. These negative findings taken collectively confirm the first hypothesis posed in this study. Interestingly, there was no difference between the students with SEN and their peers in terms of their social self-concept as both groups reported remarkably similar positive perceptions.

The students' social participation was further examined through the application of three indices, namely the peer acceptance, the friendships and the cohesive subgroups indices. Instead of solely relying on average scores, the application of these indexes provides more complete picture of marginalisation (see Table 2). With regard to the first index, using 'no nominations at all' as a criterion seems a clear indication of non-acceptance in the peer group. Accordingly, the majority of students with SEN (88.9%) could be seen as socially accepted since they had received one nomination and only 11.1% had received no nominations at all. However, as Pijl, Frostad, and Flem (2008) have argued, having only been nominated by one peer does not suggest satisfactory acceptance because these students are quite vulnerable for losing all peer support. Consequently, we proceeded with utilising 'less or equal to one nomination' as a criterion for determining social acceptance. Using this as a criterion seriously increases the percentage of students with non- or a low peer acceptance. Accordingly, one third of the participating students with SEN (33.3%) could be regarded as at risk of being excluded compared to only 11.6% of the typically developing group. Chi-squared analysis revealed that this difference was statistically significant ($\chi^2 = 16.05$, $df = 1$, $p < .001$). The application of the second index indicated that the students with SEN were more at risk of not having any reciprocated friendships in their class compared to their typically developing peers (26.7% compared to 7.3%). Again, the application of Pijl, Frostad, and Flem's (2008) stricter criterion of 'less or equal to one friendship' doubles the percentages of students being at risk of marginalisation since 51.1% of students with SEN had equal to or less than 1 friendship compared to 18.4% for students without SEN. Again, this difference was statistically significant ($\chi^2 = 25.51$, $df = 1$, $p < .001$). Finally, the application of the third index indicated that students with SEN were at a greater risk of social isolation compared to their typically developing peers (28.9% were not part of a cohesive subgroup in their class compared to 9.9%, $\chi^2 = 13.96$, $df = 1$, $p < .001$).

Next, we examined the perceptions students held about the quality of their best friendship. According to our second hypothesis, students with SEN were expected to express

Table 2. Peer-acceptance, number of friendships and participation in cohesive subgroups for students with and without SEN.

Group	N	Peer-acceptance		
		Nominations	No nominations at all	≤1 nomination
SEN	45	40 (88.9%)	5 (11.1%)	15 (33.3%)
Non-SEN	412	397 (96.4%)	15 (3.6%)	48 (11.6%)
		Number of friendships		
		Friends	No friends at all	≤1 friend
SEN	45	33 (73.3%)	12 (26.7%)	23 (51.1%)
Non-SEN	412	382 (92.7%)	30 (7.3%)	76 (18.4%)
		Participation in cohesive subgroups		
		Member of subgroup	Not member of subgroup	
SEN	45	32 (71.1%)	13 (28.9%)	
Non-SEN	412	371 (90.1%)	41 (9.9%)	

similar perceptions of best friendship quality to the ones expressed by their peers without SEN. The statistical analysis performed confirmed this hypothesis since the two groups reported similar positive perceptions in four out of five dimensions (companionship, help, security and closeness); and, strikingly, students with SEN reported less conflict with their best friend compared to their peers without (see Table 3). Given that this analysis only concerns friendship quality perceptions without confirming these with additional evidence (i.e. observations, interviews with teachers, etc.), it was deemed necessary to first identify all reciprocal friendships in our data-set and then compare the perceptions of students with SEN with the estimation of their counterparts without SEN who reciprocated (i.e. also nominated them as best friends and rated this friendship). In doing so, we were able to examine their capability of accurately judging the quality of their best friendship. Twenty-four reciprocated best friendships between students with and without SEN were detected in the database with the remaining 21 students with SEN nominating someone external to their class as best friend. The paired-samples *t*-tests conducted failed to detect significant differences in any of the five friendship quality dimensions suggesting that the judgement of the students with SEN were accurate. However, a word of caution is needed here; the bottom panel of Table 3 shows that, with the exception of the companionship dimension, the mean differences in the remaining four dimensions are larger than the mean differences between the total group of students with SEN and the group of students without SEN (upper part of Table 3). It could, therefore, be suggested that the statistical analyses performed lacked sufficient power to detect statistical significance. Bearing this in mind, the outcomes of these analyses should be treated cautiously.

Finally, we tested our third hypothesis which concerned the relationship between the social self-concept of students with SEN and their acceptance by peers as well as their perceptions of best friend quality. As anticipated on the basis of previous research findings, the social self-concept of students with SEN was very weakly associated with their acceptance as the low correlation of $r = .13$ in Table 4 indicates. By contrast, the analysis revealed a moderate positive correlation ($r = .41, p < .01$) between the social self-concept held by students with SEN and the dimension of 'companionship'. Although the inferences that can be made from correlational analyses are very limited, this finding is very interesting as it reaffirms the importance of having a good friend with whom students with SEN voluntarily spend

Table 3. Mean scores on the FQS subscales for students with and without SEN.

Friendship quality	SEN (N = 45)		Non-SEN (N = 412)		<i>t</i> -test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Companionship	4.06	.69	3.98	.63	-.73
Conflict	3.51	.87	3.81	.85	2.19*
Help	4.22	.84	4.25	.74	.30
Security	3.98	.87	4.01	.75	.90
Closeness	4.23	.71	4.35	.60	1.05
Shared friendship quality	SEN (N = 24)		Non-SEN (N = 24)		<i>t</i> -test
Companionship	4.05	.65	3.98	.77	-.37
Conflict	3.38	.85	3.79	.89	1.69
Help	3.96	.97	4.29	.74	1.44
Security	3.75	.88	4.20	.59	2.14
Closeness	3.98	.73	4.25	.57	1.56

* $p < .05$.

Table 4. Correlations between self-concept and peer-acceptance and dimensions of friendship quality for students with SEN.

Variables	Social self-concept	Peer acceptance	Companion-ship	Conflict	Help	Security	Closeness
Social self-concept	–						
Peer acceptance	.13	–					
Companionship	.41**	.12	–				
Conflict	–.04	–.09	.12	–			
Help	.16	.13	.53**	.32*	–		
Security	.13	–.01	.44**	.31*	.61**	–	
Closeness	.07	.00	.44**	.17	.64**	.52*	–

* $p < .05$;** $p < .001$.

their free time together. None of the other friendship quality dimensions (conflict, help, security and closeness) was significantly related to social self-concept.

Discussion

The current study focused on all four key themes of social participation as theorised by Koster et al. (2009), namely the students' acceptance by classmates; friendships/relationships; social self-perceptions; and contacts/interactions. With regard to three out of four key themes of social participation, the results of this investigation were negative indicating that students with SEN are at a high risk for low social participation. In line with previous research efforts (Koster et al. 2010; Schwab 2015b), students with SEN in this study were less socially accepted and had, on average, fewer friends than their typically developing peers.

With regard to the theme of contacts/interactions, the students with SEN were more often recorded to be alone and had fewer interactions with their peers than their counterparts without SEN. Alarming, this lack of interaction between students with SEN and their peers was not only due to significant fewer attempts from the students with SEN but also from their peers. This is particularly worrisome because the lack of social interaction cannot solely be attributed to the limited social skills possessed by students with SEN but possibly to the negative attitudes held by the typically developing students. Additionally, teachers were recorded to initiate interactions more often with students with SEN than with typically developing students. One plausible explanation for this finding, but by no means exclusive, relates to the over-protective stances the observed teachers might have adopted while on duty in the playground leading them to engage with students with SEN more frequently than with other students. Such practices might have inadvertently deprived students with SEN from opportunities to socially interact with peers. Indeed, the literature contains examples of teachers unintentionally depriving students with SEN of valuable social experiences through their teaching strategies and wider pedagogical practices; for example, in a case study of an inclusive school by Avramidis, Bayliss, and Burden (2002), a girl with spina bifida was observed to be spending all her lunch breaks at the staff room alongside teachers and teaching assistants. This arrangement was described by the staff interviewed as necessary in order to protect the girl from having an accident in the playground or getting verbally abused by other students. This interaction with adults, however valuable, was at the expense of social interaction with peers in the playground.

It is worth noting here that we cannot make any firm judgements about the quality of the teacher–student interactions observed in the present study since we did not record the nature of such interactions (positive or negative); it is therefore likely that some of these interactions might have had a positive impact on the relations of pupils with SEN with fellow students. However, looking at our observational evidence as a whole, we could still argue that the observed students with SEN ought to interact more often with their peers than with their teachers. In this respect, teachers should endeavour to keep their interaction with students with SEN to a minimum while at the same time attempt to construct some group activities that facilitate social interaction among students and ultimately the development of friendships.

With regard to the key theme of social self-perception, the students with SEN reported more favourable perceptions than their actual relationships could justify, a finding that also emerged in other studies (Koster et al. 2010; Avramidis 2013). Some explanations for this paradox could be put forward here; either these students with SEN experience social obliviousness as some authors have implied in the past (e.g. Pijl and Frostad 2010), or they had developed the ability to focus on the positive aspects of their peer relationships and not the negative ones (Bear et al. [1993] cited in Avramidis 2013). The evidence reported in the current study lends support to the second explanation since the students with SEN reported very positive perceptions of best friendship quality. Specifically, in this study the levels of all self-reported dimensions of friendship (companionship, help, security, closeness, and conflict) of students with SEN did not differ from the equivalent quality dimensions of typically developing students. This finding is in agreement with previous research on the friendship quality of students with visual impairments who were found to have similar levels of friendship quality compared to signed students (Lifshitz, Hen, and Weisse 2007); and, also in agreement with a recent study which reported no differences between the friendship quality of students with autistic spectrum disorders, students with motor/sensory disabilities and their typically developing peers (Bossaert et al. 2015). More importantly, in the present study perceptions of shared friendship quality did not differ among students with SEN and their typically developing friends. Although this came from the examination of only 24 pairs of reciprocated friendships and should be treated with caution, this finding is very important since it indicates that the participating students with SEN who were experiencing moderate learning difficulties showed a satisfactory level of interpersonal awareness.

To sum up, this study has reported some important findings which contribute to our understanding of the social participation and overall social functioning of children with SEN in regular primary schools. On the one hand, it is certainly worrisome that the students with SEN are less accepted, have fewer friends and have fewer social interactions than their typically developing peers. On the other hand, most of them had managed to form one or two friendships and, on average, they felt positive about themselves and held positive perceptions about their best friend. It is therefore quite likely that the satisfaction derived, for example, from having just one close friend may counterbalance being disliked or ignored by most other classmates.

Some limitations of this study should be mentioned. First, the study focused solely on students with moderate learning difficulties and, therefore, no firm conclusions can be drawn about the social participation of students with other types of SEN. Further research including larger samples of students with different types of SEN is recommended. Second, the study was conducted in primary schools and, therefore, its outcomes cannot be generalised in

secondary settings where peer relations become more complex, romantic relationships begin to occur and mixed-sex cliques are more common (Bossaert et al. 2015). Consequently, incorporating data from secondary education settings would have certainly strengthened the present study's outcomes. Third, the present study assessed the quality of the students' self-rated best friendship with individuals that were not necessarily members of their class. In so doing, examination of 'reciprocity' and shared perceptions of friendship was not possible for the whole sample. Fourth, the research design employed has only provided a 'snapshot' of the social participation of students with and without SEN in Greece; monitoring a particular cohort of students over a longer period of time through the employment of a longitudinal research design would have certainly resulted in a richer understanding of the complexities surrounding social participation.

Recognising these limitations, however, the study has contributed to the current debate in the field since it has highlighted the importance of friendship quality, a variable that is usually overlooked in relevant sociometric research. In so doing, the study aspires to divert the researchers' attention from the measurement of social participation to the examination of the reported relationships' quality and the exploration of how these can be strengthened. What pedagogical strategies are most effective in strengthening student relationships is as yet a largely open question.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Does social exclusion by classmates lead to behaviour problems and learning difficulties or vice versa? A cross-lagged panel analysis

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ABSTRACT

Social participation of pupils with special educational needs (SEN) is a central topic in the current inclusion debate. Numerous studies have shown that the risk of social exclusion is considerably higher for children with SEN compared to their peers without SEN, especially for pupils with behaviour problems (BP) or learning difficulties (LD). Since most of these studies are based on cross-sectional designs, there is a lack of knowledge regarding the direction of the effects. This leads to the question to what extent BP and LD have an impact on pupils' social position in the class and, vice versa, to what extent the social position has an effect on the development of BP and LD. To address these questions, we analysed sociometric data of 1244 primary school children. A cross-lagged panel analysis was conducted. The results indicate that BP and LD in 1st grade lead to significantly less social acceptance by peers in 2nd grade but do not predict significantly higher social rejection. A directed influence of LD or BP on a higher social rejection cannot be found. Conversely, neither social acceptance nor social rejection at 1st grade has an influence on the development of BP or LD at grade two.

Introduction

Since Germany ratified the *UN Convention on the Rights on Persons with Disabilities* in March 2009 and committed to enable children and adolescents with and without special educational needs (SEN) to participate in mainstream classrooms as comprehensively as possible (§ 24; UN 2017), the nationwide inclusion rate (share of pupils with SEN who attend an inclusive school from the total number of pupils with SEN) has increased from 14.6% in 2005/2006 to 37.7% in 2015/2016 with an on-going positive trend (KMK 2016a, 2016b). This rapid change in the composition of classes raises the question how schools can maintain high academic standards and still ensure that social and emotional inclusion into the community of the class can be guaranteed for all pupils. While the importance of successful academic learning is immediately obvious and has been the subject of much research, the

aspects of social participation and emotional well-being of children in inclusive classes has been largely neglected.

According to the self-determination theory (Deci and Ryan 1985), social integration (relatedness), self-determination (autonomy) and self-efficacy (competence) are the three basic psychological needs whose fulfilment is of high relevance for the pupils' subjective well-being in school (Deci and Ryan 2000), for their social and emotional development (Bagwell 2004; Male 2007) as well as for the development of a distinctive learning motivation, which are in turn closely linked to more successful academic performance (Krapp and Ryan 2002; Kullmann, Geist, and Lütje-Klose 2015; Mitchell 2014). For that reason, Martschinke, Kopp, and Ratz (2012) indicate that both the feeling of being included and the actual social inclusion by peers should be central aims of schooling.

Over the last two decades, research in the field focused on the differences between the social participation of children with and without SEN, particularly in mainstream education settings. From the majority of these studies, we know that children with SEN are less socially included compared to their classmates without SEN (e.g. Avramidis 2010, 2012; Bakker and Bosman 2003; Baydik and Bakkaloğlu 2009; Koster et al. 2010; Krull, Wilbert, and Hennemann 2014a; Lindsay 2007; Nepi et al. 2015). The processes that leads to an increased risk of the social exclusion of these children in a social group have, however, not yet been clarified (Bierman 2004). Most previous studies scrutinised the social situation of pupils with SEN in general and did not differentiate between pupils with different kinds of SEN (e.g. children and youths with sensory or physical impairments, communication problems, intellectual disabilities, learning difficulties as well as social-emotional disorders). More recent studies have focused on more detailed research questions regarding the social position of pupils with specific types of SEN. The findings of these studies show that pupils with learning or behaviour problems in school are more likely to occupy a less favourable social position (e.g. Krull, Wilbert, and Hennemann 2014b).

Comparative meta-analyses (Kavale and Forness 1996; Nowicki 2003; Ochoa and Olivarez 1995; Swanson and Malone 1992) investigated the social position of pupils with learning disabilities compared to their peers in class and came to similar results: learning disabled children were less accepted, more rejected, less often selected as friends, and they had a lower sociometric position than their classmates with typical levels of achievement. Beyond that, literature reviews also found that children with learning disabilities were consistently in less favourable social positions (Bless 2000; Bless and Mohr 2007). More recent research studies revealed comparable findings for German-speaking countries (Cloerkes 2007; Garrote 2016; Huber 2008; Huber and Wilbert 2012; Schwab 2015), the USA (Estell et al. 2008), the UK (Frederickson and Furnham 2004); Slovenia (Lorger, Schmidt, and Vukman 2015), and Norway, the Netherlands, Belgium (Bossaert et al. 2015; Pijl and Frostad 2010).

Several reasons for social exclusion of pupils with learning disabilities have been proposed. On the one hand, low cognitive abilities could be a factor that has a direct influence on pupils' ability to make friends with classmates (Nowicki, Brown, and Dare 2018; Nowicki, Brown, and Stepien 2014). On the other hand, prior studies (Kavale and Forness 1996; Newcomb, Bukowski, and Pattee 1993; Nowicki 2003) as well as recent studies (Garrote 2017)

also indicate that social skill deficits and behaviour problems are often linked to social rejection of learning disabled children. Moreover, Bierman (2004) reveals that pupils who are socially rejected by their peers display attributes of children with emotional-behaviour disorders including a lack of prosocial competences, high rates of aggressive or disruptive behaviour, inattentiveness, immaturity and high rates of social anxiety.

Studies show that children and young people with emotional-behavioural disorders are particularly less socially integrated compared to peers without SEN (Chang 2004; Coie et al. 1991; Goetze 2008; Mand 2007; de Monchy, Pijl, and Zandberg 2004; Preuss-Lausitz 2005; Sabornie 1987; Warden and MacKinnon 2003), and also compared to pupils with learning disabilities (Wocken 1993). Gasteiger-Klicpera and Klicpera (1997) found that pupils with aggressive behaviour had a 3.0–5.5 times higher risk of a low sociometric position compared to their classmates. In addition, empirical research by Boivin and Vitaro (1995) as well as by Cairns et al. (1988) reveals that pupils with emotional-behavioural disorders and their classmates who regularly exhibit prosocial behaviour very rarely form close friendships. Instead, the former are mostly friends with peers who also display behavioural problems.

In a previous study, we found that the social and emotional situation of pupils with learning difficulties and behaviour problems was worse compared to their classmates as evidenced by a low sociometric position (less acceptance by classmates), more negative perception of the classroom climate, a feeling of less acceptance from their teacher as well as a more negative academic self-concept (Krull, Wilbert, and Hennemann 2014b). Moreover, children with behaviour problems were much more likely to be explicitly rejected by their classmates than those with learning difficulties. The overall pattern suggests that pupils with behaviour problems are more actively excluded while pupils with learning disabilities experience a passive form of exclusion.

Besides several studies showing that behaviour and cognitive problems are correlated with the social position in class, further factors might also be of importance. Considering gender differences, most of the empirical research indicates that boys experience more peer rejection than girls (Ato, Galián, and Fernández-Vilar 2014; Coie, Dodge, and Coppotelli 1982; Kulawiak and Wilbert 2015; Sabornie, Marshall, and Ellis 1990), which is often associated with more elevated levels of aggressive and hyperactive behaviour (Archer 2004; Coie, Dodge, and Kupersmidt 1990) as well as lower scores of social competences and prosocial behaviour as rated by teachers (Parker and Asher 1993).

Regarding friendships across different racial and ethnic groups, studies indicate a higher level of social exclusion among minorities.¹ These children are more likely to receive fewer positive and more negative nominations (Coie, Dodge, and Coppotelli 1982; Kronig, Haeberlin, and Eckhart 2000). Pupils prefer same-ethnicity friendships to cross-ethnicity friendships (Graham, Taylor, and Ho 2011).

In summary, the vast majority of studies point towards an unfavourable social situation of pupils with SEN in mainstreaming classes, in particular, with regard to children with behaviour problems or learning difficulties. During the last years, research focused on the question why certain pupils tend to be more often socially rejected than their classmates. Possible factors that have been proposed which may influence social rejection by peers include social skill deficits (e.g. Bierman 2004), low cognitive abilities (e.g. Nowicki, Brown, and Dare 2018), gender differences (e.g. Ato, Galián, and Fernández-Vilar 2014) and migration background (i.e. belonging to an ethnic minority; e.g. Graham, Taylor, and Ho 2011).

Research questions and hypotheses

A clear limitation of previous research is that it is, to our knowledge, entirely based on cross-sectional studies. That is, we have only very limited evidence about how exactly the described factors influence each other, and we can merely state their co-occurrence. On the one hand, learning problems and behaviour problems might lead to an unfavourable social situation (Ladd and Troop-Gordon 2003; Parker and Asher 1987; Schwab 2014), but the opposite direction is also plausible: due to less social acceptance and high social rejection, children feel unwell in class (Hascher 2010). This in turn might have a negative influence on academic achievement (Blatchford, Pellegrini, and Baines 2016; Wentzel 2009). As a consequence, children can develop learning problems (Swanson, Harris, and Graham 2013). Likewise, we might assume that children who do not feel comfortable in school may develop emotional and behavioural problems as has been shown in similar contexts (Bagwell, Newcomb, and Bukowski 1998; Dodge et al. 2003; Kupersmidt and Coie 1990; Laird et al. 2001). The study at hand tries to address this desideratum and gain more insight into the extent to which social exclusion processes and school-related problems develop and influence each other across time.

The first aim of the study is to replicate previous studies that investigated the connection between school-related problems and social exclusion while taking both learning problems and behaviour problems into account simultaneously. We assume that school-related behaviour problems and school-related learning difficulties correlate with a low social position in inclusive primary-school classes. Moreover, we expect an active social rejection of children with behaviour problems (more explicit social rejection) and a passive social rejection of children with learning problems (less social acceptance).

Secondly, we want to uncover how social rejection and acceptance and school related problems influence each other and develop across time. While most previous research suggests that school-related behaviour problems and school-related learning difficulties will lead to less social acceptance and more social rejection, the opposite process, in which lack of social acceptance and social rejection effect the development of school-related behaviour problems and school-related learning difficulties, might also be true.

Finally, we assume that gender and migration background have an influence on the social position of pupils within a class. For that reason, both factors should be controlled for to avoid misinterpretations of the results.

Method

Participants

This empirical research is part of the project 'Schools on their way to inclusion' (Hennemann, Wilbert, and Hillenbrand 2014), conducted in one district in the state of North Rhine-Westphalia in Germany. Three thousand eighty-nine first grade pupils (2012, T1) and 1244 second grade pupils (2013, T2) from inclusive primary schools participated in this longitudinal study.

At T2 we had a high dropout rate of over 50 classes because either teachers or parents did not consent to the survey a second time. Additionally, we could not provide all needed human resources to ask every second grader we assessed at T1. Hence, our analyses only

include those classes who participated in both years. The descriptive data of the included and the excluded pupils at T1 are comparable with each other (see Table 1).

The included sample at T1 and T2 consists of 1244 pupils from 70 classes in 33 inclusive schools. The sample was evenly distributed by sex (51.3% boys). The approximate distribution of children born in families with a migration background was 35.0%. At T1, the mean age of the participants was 6.48 years ($SD = 0.54$; range = 5–9 years). One year later, children were on average 7.45 years old ($SD = 0.54$; range = 6–10 years).

The total sample includes pupils with certain school-related problems and/or difficulties e.g. intellectual problems, hearing problems, visual problems, language problems, behaviour problems, learning problems and physical problems. They represented about 18.0% of the total participants in both 2012 and 2013. Due to our research interest focused on children with behaviour problems and learning difficulties in school (school-related behaviour problems: T1: 7.0%, T2: 8.0%; school-related learning difficulties: T1: 7.0%, T2: 8.0%), we established two subgroups for our analyses: pupils with *school-related behaviour problems* (SRBP), and pupils with *school-related learning difficulties* (SRLD). A more detailed description of the both subsamples over time is presented in Tables 2 and 3. Those children with other forms of school-related problems and/or difficulties at T1 and T2 ($n = 3.0\%$) have been excluded from the data analyses.

Measures

School-related behaviour problems, school-related learning difficulties and migration background

Due to the conception of inclusion, the majority of schools in this study abandoned a psychometric diagnosis of SEN (in learning and behaviour) for first and second graders. We asked the classroom teachers to indicate the extent to which they experienced several kinds of school-related problems or impairments in their pupils. The teachers could choose among the following options (multiple choices were possible): (a) blindness and visual impairments, (b) deafness and hearing impairments, (c) physical disabilities, (d) language and speech impairments, (e) intellectual disabilities, (f), emotional and behavioural disorders, and (g) learning difficulties. No definitions of the categories (a–g) were given to the teachers prior to rating each child.

Table 1. Comparison of the included (children who participated in both years) and excluded (dropout at T2) pupils at T1.

Scale	N_{included}	N_{excluded}	$M (SD)_{\text{included}}$	$M (SD)_{\text{excluded}}$	d	t	df	p
Age	1182	1732	6.48(0.54)	6.47 (0.57)	0.0	−0.26	2613.2	>0.79
Gender	1217	1845	1.51 (0.50)	1.50 (0.50)	0.0	−0.27	2633.2	>0.78
Migration background	1221	1740	0.38 (0.48)	0.29 (0.45)	−0.1	−3.78	2534.4	<0.001
School-related behaviour problems	1244	1764	0.07 (0.26)	0.10 (0.30)	0.1	3.14	2912.6	<0.01
School-related learning difficulties	1244	1764	0.07 (0.25)	0.11 (0.31)	0.1	4.12	2956.7	<0.001
Choice as seatmate	1241	1840	2.22 (1.81)	2.14 (1.84)	0.0	−1.19	2698.5	>0.23
Reject as seatmate	1241	1842	1.71 (2.25)	1.93 (2.37)	0.1	2.60	2758.1	<0.01

Note: Choice as seatmate = sociometric question regarding social acceptance; reject as seatmate = sociometric question regarding social rejection by peers.

Table 2. Comparison of how the percentage of pupils with school-related behaviour problems changed or remained stable over time.

SRBP T1	SRBP T2	
	No (%)	Yes (%)
No	89	4
Yes	2	5

Note: SRBP T1 = school-related behaviour problems at time 1; SRBP T2 = school-related behaviour problems at time 2.

Table 3. Comparison of how the percentage of pupils with school-related learning difficulties changed or remained stable over time.

SRLD T1	SRLD T2	
	No (%)	Yes (%)
No	90	4
Yes	2	4

Note: SRLD T1 = school-related learning difficulties at time 1; SRLD T2 = school-related learning difficulties at time 2.

Teachers were also asked to identify children with migration background (by choosing 'yes' or 'no' for each pupil). They were also not provided with definitions and characteristics of the term migration background.

Social acceptance and social rejection by the classmates

To assess the social acceptance and the social rejection of each pupil within a class, a sociometric questionnaire (e.g. Moreno 1934) was administered. The class was used as the reference group (Cillessen 2011), and pupils were asked to 'Name the classmates next to whom you like to sit most' (social acceptance) and 'Name the classmates next to whom you like to sit least' (social rejection). The number of nominations was not restricted (Terry 2000).

For the sociometric dimensions acceptance and rejection, Jiang and Cillessen (2005) reported good test-retest reliability (acceptance: $r_{tt} = 0.72$ and rejection: $r_{tt} = 0.70$). According to Coie and Dodge (1983), the nomination scores for 'like least' and 'like most' for a period of one year are stable and range between $r = 0.50$ and $r = 0.70$.

Procedure

The study was part of a four-year longitudinal study regarding the social situation of primary school pupils with and without SRBP and SRLD in mainstreaming classes. From February through May of 2012 and 2013 (each time from the beginning until the middle of the second school semester), undergraduate students working in dyads collected the data. A standardised data collection script was provided and pupils were trained in data collection. Due to their insufficient reading and writing skills, first grade pupils were interviewed in a one-to-one interview in a separate room. Second grade pupils filled out a questionnaire in the classroom unless (according to the teachers' opinion) they needed special support in answering the questions. The latter were interviewed in the same manner as the first graders one year before.

Statistical analyses

To examine the directions of effects between school-related problems regarding learning or behaviour and the social acceptance or social rejection by peers in class, the main analyses were conducted on the basis of a two-wave cross-lagged structural equation model.

The model included *school-related behaviour problems* (SRBP), *school-related learning difficulties* (SRLD), *choice as seatmate* (social acceptance; absolute frequency of peer-nominations regarding 'next to whom you like to sit most'), *reject as seatmate* (social rejection; absolute frequency of peer-nominations regarding 'next to whom you like to sit least') at both measurement times (T1 and T2), gender and migration background. The complete model with the fixed synchronous correlations at T2 is shown in Figure 1.

As the endogenous variables of the model had a mixed scale level (dichotomous and absolute), the parameters of the model were derived from a diagonally weighted least squares estimation (DWLS; Muthén 1993). The overall fit of the model was evaluated using a chi-square test and, as recommended by Kline (2016), the comparative fit index (CFI; acceptable values more than 0.90 and, ideally, greater than 0.95; Hu and Bentler 1999), the Tucker-Lewis index (TLI; acceptable values greater than 0.95; Hu and Bentler 1999), the root-mean-square error of approximation (RMSEA; acceptable fit between 0.06 and 0.08; Hu and Bentler 1999), and the weighted root mean square residual (WRMR; good model fit < 1.0; Yu 2002). All analyses were performed using the statistical software R (R Core Team 2014)

Figure 1. Complete cross-lagged-panel model. Dashed lines indicate fixed synchronous correlations. SRBP = school-related behaviour problems; SRLD = school-related learning difficulties; T1 = Time 1; T2 = Time 2.

and the package lavaan (Rosseel 2012). An alpha-error level of 0.05 was applied to all statistical tests.

Results

Descriptive analyses

Table 4 provides an overview of the applied measures, correlations, means and standard deviations for all variables. The results of this preliminary analysis show that the correlations between *SRBP*, *SRLD*, *choice as seatmate*, and *reject as seatmate* at T1, T2, and across T1 and T2 are all statistically significant ($0.001 > p < 0.05$) with positive coefficients except for between *SRBP*, *SRLD*, and *choice as seatmate* within and over time, as well as between *choice as seatmate* and *reject as seatmate*. *SRBP*, *SRLD* and *reject as seatmate* indicate a medium to high stability over time ($0.39 \leq r \leq 0.56$). With regard to the means and standard deviations, pupils in second grade were on average chosen and rejected as favourite seatmate by classmates twice as often as one year before. The standard deviations of both variables at T2 are 1.75 times higher than at T1, which is remarkably high compared to the mean values.

Cross-lagged panel model

The overall model fit is good to acceptable with $\chi^2(9) = 52.44, p < 0.001$; CFI = 0.97; TLI = 0.85; RMSEA = 0.06; WRMR = 0.98. The model explains $R^2 = 29.5\%$ of the variance of *SRBP* at T2, $R^2 = 33.9\%$ of *SRLD* at T2, $R^2 = 24.1\%$ of *choice as seatmate* at T2, and $R^2 = 31.8\%$ of *reject as seatmate* at T2.

The social acceptance and rejection of pupils with school related problems

Table 5 shows the covariance parameters of the cross-lagged panel model, which sheds light on our first research question whether pupils with school-related problems in class tend to be in a less favourable social situation.

At T1, the results show a low negative correlation of school-related problems and *choice as seatmate* (*SRBP*: $\beta = -0.10, p < 0.05$; *SRLD*: $\beta = -0.14, p < 0.001$). *SRBP* and *reject as seatmate* correlate positively (*SRBP*: $\beta = 0.42, p < 0.001$), whereas the correlation between *SRLD* and *reject as seatmate* is considerably lower (*SRLD*: $\beta = 0.08, p < 0.05$). For *gender* and *migration background*, the covariance parameters indicate a heterogeneous picture. Boys more often exhibit *SRBP* ($\beta = -0.14, p < 0.001$), and they tend to be *rejected as seatmate* more often than girls ($\beta = -0.29, p < 0.001$). With respect to *gender* and *SPLD*, the results do not indicate any significant differences. Concerning the *migration background*, we find a positive correlation with *SRLD* ($\beta = 0.11, p < 0.001$), a negative correlation with *choice as seatmate* ($\beta = -0.08, p < 0.05$) as well as a positive correlation with *reject as seatmate* ($\beta = 0.08, p < 0.05$).

The influence of school-related problems on social acceptance and rejection, and vice versa

Table 6 lists the path coefficients of the cross-lagged model (see Figure 1). The autocorrelations indicate that each of the four variables remain stable over time (*SRBP*: $\beta = 0.54, p < 0.001$; *SRLD*: $\beta = 0.56, p < 0.001$; *choice as seatmate*: $\beta = 0.40, p < 0.001$; *reject as seatmate*: $\beta = 0.47, p < 0.001$). Following our hypotheses, we first analysed whether *SRBP* and *SRLD* lead to more

Table 4. Correlations, means and standard deviations among study variables.

	SRBP T1	SRBP T2	SRLD T1	SRLD T2	Choice T1	Choice T2	Reject T1	Reject T2	Gender	MB
SRBP T1	–									
SRBP T2	0.56***	–								
SRLD T1	0.09**	0.06*	–							
SRLD T2	0.13***	0.10***	0.55***	–						
Choice T1	–0.10***	–0.12***	–0.13***	–0.11***	–					
Choice T2	–0.18***	–0.19***	–0.13***	–0.14***	0.39***	–				
Reject T1	0.32***	0.31***	0.09**	0.09**	–0.11***	–0.29***	–			
Reject T2	0.25***	0.30***	0.08**	0.09**	–0.22***	–0.41***	0.43***	–		
Gender	–0.14***	–0.18***	–0.03	–0.03	–0.02	0.12***	–0.26***	–0.25***	–	
MB	0.01	0.04	0.11***	0.09**	–0.06*	–0.11***	0.08**	0.13***	–0.04	–
M	0.07	0.08	0.07	0.08	2.22	4.83	1.72	4.51	0.48	0.35
SD	0.25	0.28	0.25	0.27	1.81	3.10	2.25	3.91	0.50	0.48

Note: SRBP T1 = school-related behaviour problems at time 1; SRBP T2 = school-related behaviour problems at time 2; SRLD T1 = school-related learning difficulties at time 1; SRLD T2 = school-related learning difficulties at time 2; choice T1 = choice as seatmate at time 1; choice T2 = choice as seatmate at time 2; reject T1 = reject as seatmate at time 1; reject T2 = reject as seatmate at time 2; MB = migration background.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 5. Covariance parameters of the cross-lagged panel model.

	β	B	SE	z	p
SRBP (T1)					
SRLD (T1)	0.11	0.00	0.00	3.17	<0.05
Choice as seatmate (T1)	-0.10	-0.04	0.01	-3.42	<0.05
Reject as seatmate (T1)	0.42	0.21	0.03	6.80	<0.001
Gender	-0.14	-0.02	0.00	-4.89	<0.001
Migration background	0.00	0.00	0.00	-0.11	>0.90
SRLD (T1)					
Choice as seatmate (T1)	-0.14	-0.06	0.01	-5.23	<0.001
Reject as seatmate (T1)	0.08	0.04	0.02	2.34	<0.05
Gender	-0.02	0.00	0.00	-0.68	>0.49
Migration background	0.11	0.01	0.00	3.53	<0.001
Choice as seatmate (T1)					
Reject as seatmate (T1)	-0.22	-0.80	0.10	-8.13	<0.001
Gender	-0.03	-0.03	0.03	-1.02	>0.30
Migration background	-0.08	-0.07	0.03	-2.69	<0.05
Reject as seatmate (T1)					
Gender	-0.29	-0.30	0.03	-10.07	<0.001
Migration background	0.08	0.08	0.03	2.44	<0.05
SRBP (T2)					
SRLD (T2)	0.06	0.00	0.00	0.89	>0.37
Choice as seatmate (T2)					
Reject as seatmate (T2)	-0.37	-3.20	0.39	-8.16	<0.001

Note: SRBP T1 = school-related behaviour problems at time 1; SRBP T2 = school-related behaviour problems at time 2; SRLD T1 = school-related learning difficulties at time 1; SRLD T2 = school-related learning difficulties at time 2.

Table 6. Standardised path coefficients from structural equation modelling: predictors of school-related behaviour problems, school-related learning difficulties, choice as seatmate and reject as seatmate.

	β	B	SE	z	p
SRBP (T2)					
SRBP (T1)	0.54	0.62	0.12	5.03	<0.001
Choice as seatmate (T1)	-0.04	-0.01	0.01	-1.24	>0.21
Reject as seatmate (T1)	0.12	0.02	0.01	1.35	>0.17
Gender	-0.07	-0.04	0.02	-1.63	>0.10
Migration background	0.01	0.01	0.02	0.39	>0.69
SRLD (T2)					
SRLD (T1)	0.56	0.63	0.11	5.98	<0.001
Choice as seatmate (T1)	-0.03	-0.01	0.01	-1.01	>0.31
Reject as seatmate (T1)	0.05	0.01	0.01	1.05	>0.29
Gender	0.00	0.00	0.02	-0.09	>0.92
Migration background	0.04	0.02	0.02	1.02	>0.30
Choice as seatmate (T2)					
Choice as seatmate (T1)	0.40	0.68	0.07	9.59	<0.001
SRBP (T1)	-0.17	-2.16	0.42	-5.14	<0.001
SRLD (T1)	-0.06	-0.78	0.36	-2.18	<0.05
Gender	0.13	0.80	0.20	4.07	<0.001
Migration background	-0.07	-0.46	0.20	-2.35	<0.05
Reject as seatmate (T2)					
Reject as seatmate (T1)	0.47	0.90	0.16	5.46	<0.001
SRBP (T1)	0.07	1.14	1.11	1.03	>0.30
SRLD (T1)	0.04	0.67	0.54	1.25	>0.21
Gender	-0.09	-0.74	0.30	-2.49	<0.05
Migration background	0.10	0.79	0.27	2.88	<0.01

Note: SRBP T1 = school-related behaviour problems at time 1; SRBP T2 = school-related behaviour problems at time 2; SRLD T1 = school-related learning difficulties at time 1; SRLD T2 = school-related learning difficulties at time 2.

negative social situation (less choices as favourite seatmate and more rejections) over time. The data show significant effects on the numbers of *choices as seatmate* given the presence

of *SRBP* and *SRLD* one year before: pupils with *SRBP* at T1 expect to receive $B = -2.16$ nominations less at T2 than their peers without *SRBP* at T1 ($\beta = -0.17, p < 0.001$), and pupils with *SRLD* at T1 expect to receive $B = -0.78$ nominations less at T2 than their classmates without *SRLD* at T1 ($\beta = -0.06, p < 0.05$). We found no significant changes of social rejection over time due to school-related problems (for *SRBP*: $\beta = 0.07, p > 0.30$; for *SRLD*: $\beta = 0.04, p > 0.21$). Nevertheless, the effect strengths are of practical significance (a $B = 1.14$ increase in rejections for pupils with *SRBP* and an increase in $B = 0.67$ rejections for pupils with *SRLD*). Second, we analysed whether social acceptance and social rejection also effect the development of *SRBP* and *SRLD*. The results reveal that neither *choice as seatmate* nor *reject as seatmate* have a significant influence on the development of school-related problems (all $ps > 0.17$).

Moderation by gender and migration background

According to our assumption, *gender* and *migration background* will probably influence the outcomes. The results show that the expected value of girls receiving *choices as seatmate* increases significantly across time ($\beta = 0.13, p < 0.001$), and the expected value of girls receiving *rejections as seatmate* decreases significantly ($\beta = -0.09, p < 0.05$) compared to their male classmates. In addition, pupils with a *migration background* expect to receive significant less *choices as seatmate* ($\beta = -0.07, p < 0.05$), and more *rejections as seatmate* ($\beta = 0.10, p < 0.01$) at T2 compared to their peers without migration background. Regarding the effect of gender and migration background on the development of school-related behaviour or learning problems, no significant findings were indicated (all $ps > 0.30$).

Discussion

The main purpose of this study was to identify (1) to what extent *SRBP* and *SRLD* have an impact on pupils' social position in class and, vice versa, (2) to what extent the social position has an effect on the development of *SRBP* and *SRLD*. To our knowledge, this is the only study to date to examine exactly how the factors social rejections, social acceptance, *SRBP* and *SRLD* influence each other.

The findings show that *SRBP* is correlated with a higher social rejection as well as with a lower social acceptance by peers. Regarding the social acceptance of children with *SRLD*, the results are similar, but we only find a low correlation with a higher social rejection. These results confirm the findings of several previous studies that pupils with *SRBP* as well as with *SRLD* are socially excluded (e.g. Jia and Mikami 2015; Nepi et al. 2015; Pijl and Frostad 2010), even though the kind of social exclusion involves different characteristics: children with *SRLD* are more tolerated by classmates compared to their peers with *SRBP*. Hence, these outcomes support the assumption that pupils with *SRBP* are subject to *active* social exclusion whereas those with *SRLD* tend to face *passive* social exclusion.

Migration background is associated with *SRLD*, a lower social acceptance, and a higher social rejection. Overall, the results are in line with Kronig, Haeberlin, and Eckhart (2000), who found that learning problems and migration background are indicative of an unfavourable social position in class. Regarding gender differences, the findings confirm previous studies (e.g. Coie, Dodge, and Coppotelli 1982; Coie, Dodge, and Kupersmidt 1990): boys are more often chosen as rejected and more often exhibit *SRBP* than girls.

All variables have a quite high stability over time, in particular *social rejection*. From first to second grade, those who are strongly rejected compared to their peers stay strongly

rejected in second grade. And those who were not rejected in first grade are probably those who are not rejected in second grade. By contrast, social acceptance seems to be prone to changes from first to second grade. Considering the epidemiologic data of children with learning disabilities and emotional-behaviour disorders (e.g. Linderkamp and Grünke 2007), the stability of these attributes are as expected.

The results indicate a significant relation across time between SRLD and SRBP in the first grade, and lower social acceptance in second grade. Whereas a similar link between SRLD and SRBP in grade one, and a higher social rejection in grade two cannot be found. This lack of significance is not in line with our expectations based on previous research. Given that the regression weights are not statistically significant but the absolute values of the weights are of practical relevance, this might be due to a low statistical power because of the small sample size and large variances within the variables.

In sum, the results corroborate the hypotheses that school-related problems regarding learning and behaviour pose a risk of social exclusion. This is in line with the results of cross-sectional studies by Bierman (2004) and Garrote (2016, 2017). A possible explanation might be that within the first school year pupils get to know each other, become more aware whom of their peers they like and dislike, and start to make more serious, more complex and more intense friendships (Blatchford, Pellegrini, and Baines 2016). Therefore, pupils are less indifferent towards others and it becomes clearer who is accepted and who is rejected in a classroom.

Conversely, neither lower social acceptance nor higher social rejection affects the development of SRLD and/or SRBP significantly after one year (however, the pattern of results of all four regression weights point towards the hypotheses). The missing significant effect is in contrast to previous theories and results on this topic.

The results of the present study might contribute to the current discussion regarding social position of pupils with SEN in mainstreaming setting, but it should be interpreted in the light of some limitations. First, even though we corroborated a high stability of peer-nominations during one-year period for all grades (Coie and Dodge 1983), the average number of nominated peers for choices and rejections as seatmates increases about two times from grade one to grade two. This might be because pupils knew each other less well when asked in grade one compared to grade two. Additionally, in grade one we conducted face-to-face interviews for all in a side-room without seeing any classmates. In this exceptional situation, it can be difficult for children to remember all names of their classmates. If pupils are intimidated by the situation, the validity of the answers might be affected (Gale 2008).

Second, at T2 we had a relatively high drop-out rate. Although we compared the groups of the included and the excluded pupils using t-tests, the significant reduction in the size of the sample might have an impact on sample representativeness and on the sample composition due to differences in unmeasured attributes.

Third, our classification as SRBP and SRLD was not based on a standardised diagnostic classification of an emotional-behavioural disorder or a learning disability. Rather we asked classroom teachers to make assumptions about whether their pupils had school-related behaviour problems or learning difficulties. Contrary to a standardised diagnostic classification, the criteria teachers used to make these judgements remain unclear. In view of the fact that teachers are quite accurate but not perfect when estimating pupils' performance (Hoge and Coladarci 1989; Südkamp, Kaiser, and Möller 2012) as well as the bias inherent in teacher ratings of social, emotional, and behaviour problems (Dobbs and Arnold 2009), the

concept of SRLD and SRBP might vary from teacher to teacher. Further studies should assess more specific, reliable, and valid data (standardised screenings or criterial teacher ratings) about the pupils' difficulties regarding emotions, behaviour, and learning in order to establish more concrete information that will have important implications for practical applications.

Despite these limitations, the results of our study are of practical relevance as they highlight the importance of addressing SEN in mainstreaming classes. Not only should teachers focus on the academic progress of these pupils but also on the social interaction and networks of pupils with SEN and their peers. SEN pose a risk to social exclusion and increases over time if social exclusion processes are not counteracted pedagogically. To increase the social participation of children with SRBP and SRLD, one possibility for teachers is to promote their pupils' social and emotional competences, e.g. by integrating social skills training into the curriculum (Bierman and Powers 2011; Sklad et al. 2012). Moreover, there is evidence that cooperative learning strategies, e.g. peer-tutoring techniques, can also support social development and social interactions within the class (Garrote, Sermier Dessemontet, and Moser Opitz 2017; Ginsburg-Block, Rohrbeck, and Fantuzzo 2006).

In conclusion, the results are a first step towards addressing the lack of knowledge regarding the direction of effect among the factors social rejection, social acceptance, SRBP and SRLD.

Note

1. In this case, minority means those children who are in the minority in a given class, e.g. Turkish pupils could be the minority in a class or in a particular school and the ethnic German pupil would be in the majority.

Disclosure statement

We have no conflicts of interest to disclose.

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The relationship between class attitudes towards peers with a disability and peer acceptance, friendships and peer interactions of students with a disability in regular secondary schools

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ABSTRACT

Students with a disability in inclusive classes often face problems with peer acceptance, friendships and peer interactions. In this paper, the relationship between these difficulties in social participation and the attitudes that typically developing adolescents hold towards peers with a disability at the level of the class was explored. A cross-sectional study was performed involving 1866 typically developing peers, 86 children with autism spectrum disorder (ASD) and 61 children with sensory and/or motor limitations (FYS) in their first year of secondary education. Results showed that students with ASD as well as students with FYS were less accepted by peers, had fewer reciprocal friendships and were less engaged in peer interactions than their typically developing peers. The attitudes of typically developing adolescents towards their peers with a disability at the level of the class were neutral. The relationship between class attitudes and peer acceptance, friendships and peer interactions of students with ASD and FYS was moderated by type of disability. For adolescents with FYS, a significant positive relationship was found; for adolescents with ASD, no significant relationship was detected.

Introduction

Inclusive education creates opportunities for interaction with typically developing peers, which is assumed to (1) help students with a disability to develop academic and social skills, (2) foster attainment of educational goals and (3) contribute to friendship development (Carter and Hughes 2005). The latter is particularly important for adolescents as they spend proportionally more time with their peers than younger children, intensifying the influence of peer interactions on their development (Rubin, Bukowski, and Parker 2006). In spite of these opportunities, research has shown that social participation is often problematic for adolescents with a disability in general schools (e.g. de Boer and Pijl 2016; Schwab 2015). Adolescents with a disability turn out to have difficulties on all four key themes of social

participation: friendships, interactions, acceptance by classmates and the self-perception of the student with a disability (e.g. de Boer and Pijl 2016; Bossaert et al. 2013; Schwab 2015).

Despite the increasing number of studies demonstrating difficulties with the social participation of adolescents with a disability, little is known about the reasons why these difficulties occur. One potential factor that may account for this state of affairs relates to the attitudes that typically developing adolescents hold towards peers with a disability (e.g. de Boer et al. 2012). In the last decade, the attitudes of typically developing students towards peers with a disability received a great deal of attention in research, which pointed out that they generally hold neutral attitudes towards their peers with a disability (de Boer et al. 2012). However, research focusing on the actual relationship between attitudes and social behaviour is scarce, which is quite surprising as the idea that attitudes shape behaviour is the main assumption of the widely accepted Theory of Planned Behaviour (TPB; Ajzen 1991). This theory states that the most important determinants of behaviour are an individual's behavioural intentions, which are shaped by the individual's attitude towards the behaviour, subjective norms associated with the behaviour and the perceived behavioural control.

The few studies that explored the relationship between attitudes towards peers with a disability and social participation found a significant positive relationship, as expected within TBP. At the level of primary education, the study by Okagaki et al. (1998), for instance, suggested that young children who expressed positive attitudes towards peers with a disability interacted more often with these children in free play situations. At the level of secondary education, several studies also detected a significant positive relationship between students' attitudes and social participation (de Boer and Pijl 2016; Godeau et al. 2010; Schwab 2017; Vignes et al. 2009). Overall, these studies provide some evidence for the relationship between attitudes and social participation. However, further exploration of this relationship is needed.

First of all, in above-mentioned studies, the focus is mainly on personal factors, such as the attitude of the students themselves, and less on social influences, such as the influence of peers, as predictors of behaviour. However, during adolescence, the influence of peer groups on their behaviour increases (Gifford-Smith et al. 2005) as peer affiliations become even more important in their lives (Rubin, Bukowski, and Parker 2006). In TPB, the influence of significant others, such as peers, is captured by the concept of subjective norms, which is an individual's perception of how significant others will approve of their behaviour (Ajzen 1991). Subjective norms, which are injunctive norms, refer to norms that characterise what people are expected to do. The influence of injunctive norms of peers on the behaviour of adolescents such as bullying, substance abuse and sexual behaviour has been demonstrated extensively (e.g. Baumgartner, Valkenburg, and Peter 2011; Elek, Miller-Day, and Hecht 2006; Pozzoli, Gini, and Vieno 2012). Injunctive norms at the level of the classroom, gain specific attention as classrooms are social settings of which children are involuntary members and where they spend most of their time at school (Sentse et al. 2015). Nevertheless, although the importance of injunctive norms of classmates on the behaviour of adolescents is widely acknowledged, studies on the relationship between injunctive norms, such as class attitudes towards peers with a disability, and the social behaviour of adolescents towards peers with a disability are lacking.

Secondly, type of disability has hardly been taken into account when studying the relationship between attitudes and social participation contrary to research on attitudes and on social participation. In studies on the attitudes of students towards peers with a disability, an effect of type of disability has been demonstrated (e.g. de Boer et al. 2012). For instance,

Nowicki (2006) indicated that the attitudes towards peers with intellectual disabilities were more negative than towards peers with physical disabilities. Laws and Kelly (2005) reported that students were least positive towards peers with behavioural problems and most positive towards students with intellectual or physical disabilities. Within the group of students with behavioural problems, de Boer and Pijl (2016) found that students' attitudes were more positive towards students with autism spectrum disorders (ASD) than towards students with ADHD. Also in studies on social participation, differences between groups of students with disabilities have been found. For instance, findings in the study by Pijl, Frostad, and Flem (2008) showed that students with behavioural or communication problems are more at risk for social isolation than those with sensory or motor disabilities. These studies are in line with the plea by several authors (e.g. Whitehouse et al. 2009) for more comparisons between groups of students to understand if, and which, problems are unique to certain groups. However, comparisons between groups of students with a disability with regard to the relationship between attitudes and social participation have never been made. As such, a possible moderating role of type of disability on this relationship might have been overlooked. In this study, a comparison will be made between students with ASD and students with motor and/or sensory disabilities (FYS) as those groups constitute the majority of students with a disability in secondary inclusive education in Flanders (Belgium) (Scheys 2011).

The aim of this study is to explore the relationship between attitudes towards peers with a disability at the level of the class (class injunctive norms) and the peer acceptance, friendships and peer interactions of students with ASD or FYS (social participation).

More specific, following research questions will be addressed:

Research question 1: Is there a difference in peer acceptance, friendships and peer interactions between typically developing students, students with ASD and students with FYS in inclusive secondary schools?

Research question 2: What are the class attitudes toward peers with a disability in inclusive secondary schools? Are these attitudes related to the type of disability of the classmate(s)?

Research question 3: Is there a relationship between the class attitudes toward peers with a disability and the peer acceptance, friendships and peer interactions of students with ASD or FYS? Does the type of disability moderate this relationship?

Based on former research, we expected to find that the peer acceptance, friendships and peer interactions of students with a disability were lower compared to typically developing students. Within the group of students with a disability, we expected students with ASD to have more negative outcomes than students with FYS. With regard to class attitudes, we expected participants to hold neutral to positive attitudes towards peers with a disability. All participants are part of an inclusive classroom in which they have contact with at least one peer with a disability. According to the intergroup contact theory (Allport 1954), this intergroup contact will reduce intergroup prejudice and lead to more positive attitudes. Finally, on the basis of former research and TPB, we expected to find a positive relationship between class attitudes and peer acceptance, friendships and peer interactions. It can be assumed that adolescents are more inclined to accept, interact and build friendships with peers with a disability when their classroom context is permissive regarding such social behaviour. As the moderating role of type of disability on the relationship has never been studied, no hypotheses were formulated.

Method

Participants

The participants in this study were 2013 Flemish students in 122 regular 7th grade classrooms with at least one student with ASD or with motor and/or sensory disabilities (FYS) from 62 different schools. The sample consisted of 1866 typically developing students (TYP) (92.70%), 86 students with ASD (4.27%), and 61 students with FYS (3.03%). All students with ASD or FYS attended the regular class full-time and had a certificate stating that they are entitled to additional support provided by a special school within the regular school and were diagnosed by a multidisciplinary team. None of these students had an intellectual disability.

The number of participating classes per school ranged from one class to eight classes. The average class size was 18.23 (SD = 4.11) ranging from five students in one class to 28 students in one class. The number of students with ASD or FYS in one class ranged from one to three. There were 62 classes (50.82%) with at least one student with ASD and no student with FYS (Class-ASD), 52 classes (42.62%) with at least one student with FYS and no student with ASD (Class-FYS) and 8 classes (6.56%) with at least one student with ASD as well as at least one student with FYS (Class-ASD-FYS).

The sample included 1099 boys (54.60%). As expected, the gender distribution differed significantly across types of students, $\chi^2(2) = 39.75, p < 0.001$. The proportion of boys was higher among students with ASD compared to TYP students ($\chi^2(1) = 36.64, p < 0.001$) and to students with FYS, $\chi^2(1) = 8.59, p < 0.01$. In our sample, the male to female ratio in ASD was 6.17:1, which is in line with the review of Fombonne (1999). There was also a significant difference in gender distribution between students with FYS and TYP students, $\chi^2(1) = 3.88, p < 0.05$. The male to female ratio in the sample of students with FYS (1.90:1) was also higher than the ratio in the sample of TYP students (1.12:1). These ratios are also not unexpected, as boys, on average, are more prone than girls to some hereditary diseases, which might cause motor and/or sensory disabilities (Romitti et al. 2009). The age of the participants varied between 10 and 15 ($M = 13.04, SD = 5.56$). There was no significant difference between the types of students with regard to age, $F(2,1877) = 2.96, p = 0.052$.

Measures

Attitudes towards peers with a disability were measured by means of the Chedoke-McMaster Attitudes towards Children with Handicap Scale (CATCH; Rosenbaum, Armstrong, and King 1986). In this 36-item, self-administered scale, children respond on a 5-point Likert scale, ranging from 0 (strongly disagree) to 4 (strongly agree), to statements assessing the affective, behavioural and cognitive attitude components towards children with a disability. Negatively worded items are inversely coded, so that high scores represent a more positive attitude. In this study, we used the 7-item Dutch shortened version of the CATCH, which was proposed by Bossaert and Petry (2013) in a study on the factorial validity of the CATCH. This version of the CATCH is composed of one overall component, measuring affective and behavioral attitudes of children towards students with a disability. None of the cognitive items of the CATCH proved to be sufficiently related to the overall attitude measure. The Dutch shortened version of the CATCH includes following items: I would like to have a child with a disability live next door to me; I would be happy to have a child with a disability as a special friend; I would be pleased if a child with a disability invited me to his house; I would feel good doing a school

project with a child with a disability; I would invite a child with a disability to sleep over at my house; I would tell my secrets to a child with a disability; I would enjoy being with a child with a disability. In the present study, internal consistency (Cronbach's alpha) of the total scale was 0.88. Class attitudes towards peers with a disability were generated by calculating the mean of the CATCH total scores of all the students in a class, including TYP students as well as students with ASD or FYS.

This approach of calculating classroom norms is similar to other studies using classroom norms (e.g. Pozzoli, Gini, and Vieno 2012). Total scores could vary from 0 to 28.

Sociometric nominations were used to assess *peer acceptance and friendships*. Students were asked only one question, i.e. to nominate their best friends in their class. Nominations were limited to a maximum of five classmates. According to former research (e.g. Pijl and Frostad 2010), this is a stable option, restricting the freedom of choice for respondents minimally. The number of nominations each individual received was used as an index of peer acceptance. Scores for peer acceptance could range between 0 to the amount of students within the class minus one. The number of reciprocated choices was used as an index of friendships. A student had a friend if the respondent nominated a classmate and that same classmate nominated that student as a friend. Friendship scores could range between 0 and 5.

To assess the presence of social *interactions* between these students with a disability and their classmates, the sociometric rating method of Roberts and Smith (1999) was used. Students were asked to describe their interactions with each of their classmates based on two following questions: (a) How much time did you spend with ... during breaks last week? and (b) How much time did you spend with ... during lessons last week? Students could answer on a five-point Likert scale, ranging from 1 = not a single break to 5 = all breaks. The reliability and validity of this measure was tested and supported by means of an observational pilot study (Roberts and Smith 1999). A composite score was created for each student, which is an average classmate-reported measure for the time classmates claim to spend with the student during breaks added to an average classmate-reported measure for the time classmates claim to spend with the student during lessons. Scores for the classmate-rated social interaction could range between 1 and 10. Higher scores represented more interactions with classmates.

Procedure

This study was part of a large-scaled longitudinal study on social participation of students with disability following students from the 7th grade until the 10th grade. The focus of this study is the data measurement at the end of 7th grade. Participants were contacted through the schools principals of mainstream secondary schools in Flanders (Belgium). Once permission was obtained from the school principals, an invitation letter for the parents of the students with a disability was provided through the school. Only after active consent was obtained from these parents, separate consent forms were sent to the parents of the classmates. In the consent letter, children with a disability were not mentioned in the description of the study to assure participants' confidentiality. At the start of the questionnaire, students were asked for a written consent as well. In most schools, questionnaires were administered online. For practical reasons, in ten schools, the questionnaires were filled out on paper forms. Both versions included the same questions.

Analyses

Before the start of the main analyses, sociometric nominations were analysed by means of UCINET 6 (Borgatti, Everett, and Freeman 2002). This way, incoming nominations and the number of reciprocal friendships were calculated for each individual. Furthermore, a composite score for peer interactions was created for each student. Next, class attitude scores were generated by calculating the mean of the CATCH total scores of all students in a class. Descriptive statistics of peer acceptance, friendships, peer interactions, class and school attitudes were calculated.

To answer the first research question on the difference between the groups of students regarding social participation, multiple regression analyses were performed on the total sample. In sociometric data, the amount of raters might influence the final scores. Therefore, class size was included as a control variable with the average class size as a reference point. Gender was also included as a control variable with boys as the reference group. To answer the second research question on the relation between class attitude on the one hand and the type of disability of the classmate(s) on the other hand, multiple regression analyses were performed. Finally, to answer the third research question on the relation between class attitudes and the social participation of students with a disability and on the moderating role of type of disability, hierarchical multiple regression analyses with centred predictors taking gender and class size into account as covariates were used (Aiken and West 1991). As the focus of this study is on the social participation of students with a disability, only students with ASD or FYS were included in these analyses.

Results

Social participation of TYP students, students with ASD and students with FYS

Peer acceptance

Students with ASD ($M = 2.78$, $SD = 2.16$) and students with FYS ($M = 3.13$, $SD = 2.35$) received significantly less nominations than TYP students ($M = 4.21$, $SD = 2.30$). More than 10% of the students with ASD ($n = 12$; 13.95%) and of the students with FYS ($n = 7$; 11.48%) received no nominations in contrast with 4.20% ($n = 78$) of TYP students. A significant effect of class size was found indicating that students in larger classes received more nominations than students in smaller classes. See Table 1 for more detailed statistical information.

Table 1. Linear model of predictors of peer acceptance.

Model variables	<i>B</i>	SE	β	<i>t</i>	R^2
<i>Model</i>					0.02
<i>Predictor variables</i>					
(Constant)	3.75	0.28	–	13.45****	
<i>Covariates</i>					
Gender	0.00	0.10	0.00	–0.002	
Class size	0.03	0.01	0.05	2.03**	
<i>Main effects</i>					
ASD	–1.41	0.26	–0.12	–5.51****	
FYS	–1.03	0.30	–0.08	–3.44***	

Notes: Gender: Boys are the reference group.

Group of students: TYP students are the reference group.

** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$.

Friendships

With regard to the number of reciprocal friendships, significantly more negative results for students with a disability were detected. Students with ASD ($M = 1.72$, $SD = 1.39$) and students with FYS ($M = 1.85$, $SD = 1.26$) had on average less reciprocal friendships than their TYP peers ($M = 2.66$, $SD = 1.45$). Almost a quarter of the students with ASD ($n = 21$; 24.42%) and almost 20% of the students with FYS ($n = 11$; 18.03%) had no reciprocal friendship. This was also the case for almost 10% of TYP students ($n = 172$, 9.20%). A marginally significant difference ($p = 0.083$) between boys and girls was detected which indicated that girls ($M = 2.69$, $SD = 1.46$) on average had more reciprocal friendships than boys ($M = 2.52$, $SD = 1.45$). See Table 2 for more detailed statistical information.

Peer interactions

Significant effects of type of disability, gender and class size on peer interactions were found. Students with ASD ($M = 4.83$, $SD = 1.39$) as well as students with FYS ($M = 4.79$, $SD = 1.37$) had significantly less interactions with their peers during breaks and lessons than TYP students ($M = 5.08$, $SD = 1.13$). With regard to gender, we observed that girls ($M = 4.99$, $SD = 1.08$) had significantly fewer interactions with their peers than boys ($M = 5.12$, $SD = 1.20$). Finally, in small classes, students were rated significantly higher regarding time spent than in large classes. See Table 3 for more detailed statistical information.

Class towards peers with a disability

The average class attitude towards peers with a disability was 14.30 ($SD = 1.85$). Scores ranged from 8 to 19.81. Class attitude was significantly lower in Class-ASD ($M = 14.13$, $SD = 1.63$) than in Class-FYS ($M = 14.46$, $SD = 1.98$) and in Class-ASD-FYS ($M = 14.71$, $SD = 2.53$). Class size had a marginally significant positive effect ($p = 0.084$) on class attitude. See Table 4 for more detailed statistical information.

Relationship between class attitude and peer acceptance, friendships and peer interactions

With regard to *peer acceptance*, there was no main effect of class attitudes or of type of disability on the peer acceptance of students with a disability. However, the interaction

Table 2. Linear model of predictors of friendships.

Model variables	<i>B</i>	SE	β	<i>t</i>	R^2
<i>Model</i>					0.03
<i>Predictor variables</i>					
(Constant)	2.31	0.18	–	13.21****	
<i>Covariates</i>					
Gender	0.11	0.07	0.04	–1.73*	
Class size	0.10	0.01	0.03	1.28	
<i>Main effects</i>					
ASD	–0.89	0.16	–0.12	–5.56****	
FYS	–0.77	0.19	–0.09	–2.11****	

Notes: Gender: Boys are the reference group.

Group of students: TYP students are the reference group.

* $p < 0.10$; **** $p < 0.001$.

Table 3. Linear model of predictors of peer interactions.

Model variables	<i>B</i>	SE	β	<i>t</i>	<i>R</i> ²
<i>Model</i>					0.11
<i>Predictor variables</i>					
(Constant)	6.96	0.13	–	52.95****	
<i>Covariates</i>					
Gender	–0.14	0.05	–0.06	–2.93***	
Class size	–0.09	0.01	–0.33	–15.43****	
<i>Main effects</i>					
ASD	–0.39	0.12	–0.07	–3.19***	
FYS	–0.48	0.14	–0.07	–3.42***	

Notes: Gender: Boys are the reference group.

Group of students: TYP students are the reference group.

*** $p < 0.01$; **** $p < 0.001$.

Table 4. Linear model of predictors of class attitude.

Model variables	<i>B</i>	SE	β	<i>t</i>	<i>R</i> ²
<i>Model</i>					0.01
<i>Predictor variables</i>					
(Constant)	13.80	0.21	–	67.26****	
<i>Covariates</i>					
Class size	0.02	0.01	0.04	1.73*	
<i>Main effects</i>					
Class-FYS	0.33	0.09	0.09	3.79****	
Class-ASD-FYS	0.61	0.19	0.08	3.16***	

Note: Type of disability of the classmate(s): Class-ASD is the reference group.

* $p < 0.10$; ** $p < 0.01$; **** $p < 0.001$.

between class attitude and type of disability on peer acceptance was significant, reflecting a small effect size ($f^2 = 0.10$). The peer acceptance of students with FYS improved as the class attitude became more positive ($\beta = 0.69, p < 0.01$), whereas the peer acceptance of students with ASD was not significantly related to class attitude ($\beta = -0.19, p = 0.473$) (see Figure 1). See Table 5 for more detailed statistical information.

Regarding *friendships*, there was no main effect of type of disability. A marginally significant main effect of class attitude on friendships ($p = 0.057$) was found indicating that in classes where the class attitude was higher, the number of reciprocal friendships of students with a disability turned out to be higher ($r = 0.17, p < 0.05$). However, this effect disappeared when the interaction between class attitude and type of disability was entered into the model. This interaction was also marginally significant ($p = 0.097$), reflecting a small effect size ($f^2 = 0.06$). Again we found a significant positive relation between class attitudes and friendships for students with FYS ($\beta = 0.38, p < 0.01$), whereas the friendships of students with ASD were not significantly related to class attitude ($\beta = 0.02, p = 0.933$) (see Figure 2). See Table 6 for more detailed statistical information.

With regard to *peer interactions*, there was no main effect of type of disability or class attitude on peer interactions. However, class size showed a significant negative effect on peer interactions. This effect remained when the interaction term was entered into the model. The interaction between class attitude and type of disability was highly significant demonstrating the moderating effect of type of student on the relationship between class attitude and peer interactions ($f^2 = 0.29$). A significant positive relation between class attitudes and friendships was found for students with FYS ($\beta = 0.46, p < 0.01$), whereas the peer interactions

Figure 1. Interaction between class attitude and type of students on peer acceptance.

Table 5. Main effects and interactions between class attitude and type of students on peer acceptance.

Model variables	<i>B</i>	SE	β	<i>t</i>	$R^2\Delta$	<i>F</i> Δ
<i>Step 1</i>					0.05	1.79
<i>Predictor variables</i>						
(Constant)	2.92	0.25	–	11.79****		
<i>Covariates</i>						
Gender	–0.75	0.45	–0.14	–1.65		
Class size	–0.15	0.19	–0.07	–0.83		
<i>Main effects</i>						
Type of disability	0.41	0.39	0.09	1.06		
Class attitude	0.30	0.19	0.13	1.61		
<i>Step 2</i>					0.04	6.3**
<i>Predictor variables</i>						
(Constant)	2.88	0.24	–	11.78****		
<i>Two-way interaction</i>						
Type disability $\times$ class attitude	0.45	0.18	0.21	2.51**		

Notes: Gender: Boys are the reference group.

Type of disability: Students with ASD are the reference group.

** $p < 0.05$; **** $p < 0.001$.

of students with ASD were not significantly related to class attitude ($\beta = -0.19$, $p = 0.224$) (see Figure 3). See Table 7 for more detailed statistical information.

Figure 2. Interaction between class attitude and type of students on friendships.

Table 6. Main effects and interactions between class attitude and type of students on friendships.

Model variables	<i>B</i>	SE	β	<i>t</i>	$R^2\Delta$	<i>F</i> Δ
<i>Step 1</i>					0.04	1.35
<i>Predictor variables</i>						
(Constant)	1.78	0.15	–	11.94****		
<i>Covariates</i>						
Gender	–0.29	0.27	–0.09	–1.06		
Class size	0.01	0.11	0.01	0.1		
<i>Main effects</i>						
Type disability	0.15	0.23	0.05	0.63		
Class attitude	0.21	0.11	0.16	1.92*		
<i>Step 2</i>					0.02	2.79*
<i>Predictor variables</i>						
(Constant)	1.76	0.15	–	11.85****		
<i>Two-way interaction</i>						
Type disability $\times$ class attitude	0.18	0.11	0.14	1.67*		

Notes: Gender: Boys are the reference group.

Type of disability: Students with ASD are the reference group.

* $p < 0.10$; **** $p < 0.001$.

Discussion

The central aim of this study was to investigate if class attitudes towards peers with a disability are related to the social participation of students with ASD or FYS.

Figure 3. Interaction between class attitude and type of students on peer interactions.

Table 7. Main effects and interactions between class attitude and type of students on peer interactions.

Model variables	<i>B</i>	SE	β	<i>t</i>	$R^2\Delta$	<i>F</i> Δ
<i>Step 1</i>					0.17	7.16****
<i>Predictor variables</i>						
(Constant)	4.92	0.14	–	34.52****		
<i>Covariates</i>						
Gender	–0.17	0.26	–0.05	–0.67		
Class size	–0.54	0.11	–0.39	–5.08****		
<i>Main effects</i>						
Type disability	–0.15	0.22	–0.06	–0.69		
Class attitude	0.17	0.11	0.12	1.61		
<i>Step 2</i>					0.06	10.51***
<i>Predictor variables</i>						
(Constant)	4.88	0.14	–	35.31****		
<i>Two-way interaction</i>						
Type disability $\times$ class attitude	0.33	0.10	0.25	3.24***		

Notes: Gender: Boys are the reference group.

Type of disability: Students with ASD are the reference group.

*** $p < 0.01$; **** $p < 0.001$.

With regard to the first research question, results indicated that there were significant differences in peer acceptance, friendships and peer interactions between TYP students, students with ASD and students with FYS. On all three key themes of social participation, students with ASD and students with FYS showed significantly more negative outcomes

than TYP students, which is in line with existing literature (e.g. de Boer and Pijl 2016; Schwab 2015). Overall, at the end of 7th grade, girls turned out to have slightly more reciprocal friendships and less peer interactions than boys. The fact that girls typically form smaller, more closely intertwined cliques than boys (Gifford-Smith and Brownell 2003), might on the one hand limit the possibilities for girls to engage in peer interactions and on the other hand increase the chances on building reciprocal friendships. As expected on the basis of previous studies (e.g. de Boer and Pijl 2016), class size displayed a significant positive relationship with peer acceptance, indicating that students in larger classes generally receive more nominations. The opposite was found with regard to peer interactions, which is in contrast with the study of Locke et al. (2017) in which larger classes were better for the playground engagement of children with ASD.

The second research question focused on the class attitudes towards peers with a disability. The average class attitude was neutral. However, this finding does not imply that all classes hold similar attitudes towards peers with a disability. Despite the overall neutral score, in some classes negative attitudes were displayed. This finding contradicts the assumption of the intergroup contact theory (Allport 1954). It rather indicates that mere placement of students with and without disabilities in the same class or school does not automatically lead to more positive attitudes as found in other studies (e.g. Schwab 2017). Class attitudes were also significantly linked to type of disability of the classmate(s). Overall, class attitudes tend to be lower when the inclusion involved students with ASD than when students with FYS were involved. This finding is in line with the study of Laws and Kelly (2005), which indicates that students hold the most positive attitudes towards students with physical disabilities.

The third research question focused on exploring the relationship between class attitudes on the one hand and peer acceptance, friendships and peer interactions on the other hand and the moderating role of type of disability.

With regard to all three key themes of social participation, significant effects of the interaction between type of disability and class attitudes on the key themes were found. In other words, the present study suggests, first of all, that there is a link between class attitudes towards peers with a disability and the social participation of students with a disability and secondly, that this link is moderated by the type of disability. Regarding the first aspect, class injunctive norms were related to the behaviour of adolescents as proposed by TPB and found in studies on sexual behaviour, substance abuse and behavioural problems (e.g. Baumgartner, Valkenburg, and Peter 2011; Elek, Miller-Day, and Hecht 2006; Pozzoli, Gini, and Vieno 2012). As such, it is important to take class injunctive norms towards peers with a disability into account in setting up interventions to enhance the social participation of students with a disability. However, effect sizes were small to moderate, which warrants the investigation of other relevant factors at the personal level as well as at the level of social influences. At the personal level, TPB states that the personal attitude towards peers with a disability as well as the perceived behavioural control, which is the perception of how easy/difficult it is to perform the behaviour, shape the behaviour in addition to injunctive norms. At the level of social influences, descriptive norms are added to the injunctive norms in recent adaptations of TPB, such as the Integrated Behavioral Model (IBM; Fishbein 2008), to better capture the social pressure one feels to perform or not perform a behaviour. These descriptive norms refer to norms that describe what most people will do, whereas injunctive norms refer to norms that characterise what people are expected to do (Cialdini, Reno, and Kallgren 1990).

Future research should test integrated models such as TPB or IBM in order to explain the social participation of students with a disability.

With regard to the second aspect, type of disability, social participation is for the group of students with FYS generally higher in classes with a more positive attitude towards peers with a disability. However, for the group of students with ASD, class attitudes were not significantly linked to social participation. This pattern of findings might reflect a complex interplay between different factors. For instance, there might be an effect of disclosure. ASD is in contrast with motor and sensory disabilities an invisible disability where the person can decide to disclose his/her disability (Riddell and Weedon 2014). Students might not have been aware that their classmate had a disability, which affects the relationship between attitude towards peers with a disability and social participation. Another explanation might be the use of a generic measure of attitudes towards students with a disability, which does not differentiate between types of disabilities. While filling out this instrument, one might have kept a student in mind that showed more resemblance to a student with a visible disability such as students with FYS than to a student with an invisible disability such as students with ASD. Further research into this matter is warranted.

This study provides novel insight in the relationship between class attitudes and the social participation of students with a disability. However, some limitations and considerations for further research must be pointed out. First of all, our sample consisted of students within the support programme 'integrated education'. We cannot exclude that students with a disability – not acknowledged within the support programme – were included in the group of typically developing students. Moreover, it is possible that some students with ASD or FYS did not apply for extra support or were not yet diagnosed. However, considering the students' age, we believe that this will only constitute a small minority of students. Secondly, we only assessed three out of the four key themes of social participation. Research on the relationship between attitudes and the self-perception of social participation of the student with a disability is needed. Finally, as it was a first exploration of the moderating role of type of disability on the relationship between class attitudes and social participation, replication studies are necessary as well as studies that focus on other types of disabilities.

In spite of these limitations, this study presents new insights on the social influence of classmates on the social behaviour towards students with a disability and in the moderating role of type of disability, which has implications for practice. For students with FYS, the study suggests that group interventions, such as disability awareness programs, focusing on improving the class attitudes towards students with a disability might be effective in improving the social participation of these children. For students with ASD, other interventions might be needed.

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The impact of social referencing on social acceptance of children with disabilities and migrant background: an experimental study in primary school settings

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ABSTRACT

This computer-based study evaluates whether teacher feedback can have an effect on the acceptance of children with and without disabilities in inclusive, special and regular schools. The social acceptance of four children shown in photo vignettes (child with Down Syndrome, child in a wheelchair, child with migrant background and child with no visible disability or migrant background) was assessed and a significant main effect for the type of vignette was found ($F [3, 952] = 378.57, p < .01, \eta^2 = .54$) but not for the type of school the participants currently visited (inclusive school, special school, regular school). In an intervention, information was given about whether each child received positive or negative teacher feedback and about how much fun it would be to play with each child. Following this randomised intervention, we conducted a posttest to evaluate the change in social acceptance of the four children. Our data showed that both teacher feedback (between $\eta^2 = .127$ and $\eta^2 = .168$) and the information about how much fun it is to play with the child (between $\eta^2 = .200$ and $\eta^2 = .235$) effected the social acceptance ratings. Additionally, negative feedback showed a higher overall influence than positive feedback.

Introduction

Being socially accepted in their class is of considerable importance for a successful school career for all schoolchildren's well-being at school (e.g. Schwab 2014); meanwhile, dropping-out is associated with problems in social participation (e.g. loneliness; Frostad, Pijl, and Majavath 2014 or Schwab 2015a). Consequences of social rejection may extend far beyond time in school. Low rates of social participation have lasting effects on adolescents' health. Drug abuse, criminality, violence, depression and suicide may be possible outcomes (Osterman 2000). Social rejection particularly affects children and young people whose school lives are already made harder by a range of factors. In the past, many studies have shown that underperforming children are less likely to be popular in their classes and more likely to be rejected (Huber and Wilbert 2012; Kavale and Forness 1996).

This relates to empirical research on inclusion, where poor social acceptance of schoolchildren with special educational needs (SEN) is one of the best documented findings of the last two decades (Bless 2000; Bless and Mohr 2007; Frostad and Pijl 2007; Huber 2009; Kavale and Forness 1996; Krull, Wilbert, and Hennemann 2014; Pijl and Frostad 2010; Schwab 2015b). Compared to their classmates without special educational needs, special educational needs students' risk of social peer rejection is higher by a factor of 2–3 (Greenham 1999; Huber 2008). A few studies exist for students with migrant background which show that this group is also at a high risk of low social participation. Verkuyten and Thijs (2002) showed that ethnic minority students are at higher risk of social exclusion compared to their peers. Similar results for lower social participation of students with migrant background were shown in several other studies (e.g. Eckhart 2005; von Grünigen et al. 2012; Madsen et al. 2016). Looking at current research, it is noteworthy that for many years national and international research has focused on the prevalence of social rejection (Bless 2000; Haeberlin et al. 1999; Huber 2006; Kavale and Forness 1996), the personality traits of affected schoolchildren (Asher and Coie 1990; Haeberlin et al. 1999; Huber 2006; Newcomb, Bukowski, and Pattee 1993) or the consequences of social rejection at school (Bagwell, Newcomb, and Bukowski 1998; Ladd, Birch, and Buhs 1999; Osterman 2000). However, these studies did not offer applied solutions.

At this point, international research on inclusion should no longer aim to develop increasingly precise measurements to replicate adequately documented findings confirmed in numerous studies. Instead, research should seek to find convincing and evidence-based approaches to effectively promote social acceptance of schoolchildren. Chang (2004) expands upon this criticism and holds that the existing studies have almost exclusively focused on the rejected schoolchildren or their classmates while fully ignoring the teachers in this context. Since then, there have been many studies that concluded teachers are an important but, up to now, completely disregarded factor in developing and influencing social hierarchies in school (Chang 2003, 2004; Huber 2011, 2013; Huber, Gebhardt, and Schwab 2015; McAuliffe, Hubbard, and Romano 2009; Schwab, Huber, and Gebhardt 2016; White and Jones 2000; White and Kistner 1992). These findings indicate that social interaction between a schoolchild and his or her teacher may play an important part in developing social hierarchies within a class. Social referencing theory provides the theoretical foundation for this assumption (Walden and Ogan 1988). This theory assumes that schoolchildren seek clues for social orientation in the form of feedback from teachers and base their social interaction on this. We use this theory along with recent feedback research as important theoretical and empirical foundations for this study. Below, we will first describe the theoretical framework of this study (the social referencing theory and a model for teacher feedback). Second, we will discuss the current state of research in this domain and will finally expose a research desideratum.

Social referencing

Social referencing describes a phenomenon derived from developmental psychology where younger children in particular will look upon adult reference models for guidance in unfamiliar situations (Walden and Ogan 1988). Here, Feinman et al. (1992) describe the three important functions: the referrer (the influenced person), the referee (the influencing person) and the referent (the message). The relevance of the social referencing theory to the

development of infants and young children has been well established through many 1980s and 1990s studies (Feinman et al. 1992; Walden and Ogan 1988). These studies were based on comparable studies with adults and reference group effects (i.e. the conformity experiments) from the 1950s (Asch 1952; Schachter and Singer 1962; Sherif 1958).

Furthermore, Webster and Foschi (1992) argue that social referencing processes are not only important for very small children and adults, but also for school-aged children and youths. Basically, all individuals participating in everyday school life can serve as a social reference for school children. Thus, not only teachers, but also classmates, school assistants or volunteers could also embody this role. However based on Webster and Foschi (1992), in this study, we focus on the teacher as the most important social reference at school.

We assume that schoolchildren observe and use feedback given by teachers towards another schoolchild as a social reference for the teacher's social relationship with that particular schoolchild. Thus, teacher feedback is central to this process (Huber 2011, 2013; McAuliffe, Hubbard, and Romano 2009; Webster and Foschi 1992; White and Jones 2000). Based on these theoretical presuppositions, this study assumes that teacher feedback at school can influence social acceptance of schoolchildren. Therefore, positive teacher feedback improves the social acceptance of a schoolchild, and negative teacher feedback worsens social acceptance and promotes rejection. Personal feedback may have a greater influence than task-related feedback. According to the social referencing theory, peers might also have an influence on the social relationship with a particular child, if they are important as a role model to the child (Nichols, Svetlova, and Brownell 2010).

Teacher feedback

Teacher feedback is a frequently investigated topic in educational research. According to Hattie and Timperley (2007), 'feedback is conceptualized as information provided by an agent (e.g. teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding' (Hattie and Timperley 2007, 81). The authors define feedback as a communication process designed to report back to the student on the discrepancy between a learning objective and his or her current state of learning. Based on this definition, every verbal or nonverbal consequence provided by a teacher can be seen as teacher feedback. Hattie (2008) uses a meta-analysis to show that teacher feedback is one of the most effective approaches to successful learning development. However, Hattie and Timperley (2007) argued in a review that previous studies focused on dependent variables such as progress in learning, motivation, self-concept or self-efficacy. None of the works researched by the authors looked at the influence of teacher feedback on the development of social hierarchies in school. Furthermore, Hattie and Timperley (2007) argued that there are two important dimensions of teacher feedback: 'focus' and 'valence'. The first term, 'focus', covers four different approaches to teacher feedback: (1) the quality of task solving, (2) the process of task solving, (3) self-assessment when solving the task and (4) the personality of the student. According to Hattie and Timperley (2007), points 1–3 are focused strongly on the task and are often indistinguishable from each other. Additionally, Kluger and DeNisi (1996) merge these three areas and define task-related feedback as reporting on the discrepancy between a desired performance and achievement. This performance may relate to a variety of competitive norms (e.g. the performance of the reference group, an a priori criterion, or past performance). The fourth area is more distinct from the other three areas because it

concentrates on the personality of the student. The second term, 'valence', corresponds to the message of feedback and varies between positive and negative poles. Considering social referencing theory (Walden and Ogan 1988; Webster and Foschi 1992), personal feedback constitutes a more influential social reference for potential classmates than task-related feedback because it contains more information on the personality of a child who is relevant to an interaction. However, its valence is central to the effect of the feedback as this predicts the direction of the effect. In other words, if feedback towards the target child is seen to be positive by his or her classmates, this will have a beneficial effect on social acceptance of the target child. Conversely, if feedback on the personality of a target child is seen to be negative by his or her classmates, this will have an unfavourable effect on his or her social acceptance.

State of research into the effects of teacher feedback on social acceptance

So far, only a handful of studies have been carried out on the effect of teacher feedback on social acceptance at school. The initial studies showed that there were significant correlations between the valence of the teacher feedback and the social acceptance of schoolchildren across all different class levels and school systems (Huber 2011; Ladd, Birch, and Buhs 1999). These studies showed that children who were liked by the teacher and mainly received positive feedback from him or her had greater social acceptance within the class. Further studies showed a significant correlation between school performance and social acceptance (Haeberlin et al. 1999; Huber and Wilbert 2012). If we consider school grades a form of performance-related teacher feedback, these studies also indirectly support the hypothesis that teacher feedback and social acceptance may be connected. A broad-based study by Jordan, Glenn, and McGhie-Richmond (2010) in inclusive school classes indicates that not only direct performance feedback, but also attitudes to learning difficulties and teacher behaviour, may be able to influence social acceptance of children with special educational needs. The group of researchers showed that children with learning difficulties were particularly well integrated into their classes when the teachers had an optimistic and open attitude towards inclusion and a flexible view of disability. One of the very few observational studies carried out on this subject comes from McAuliffe, Hubbard, and Romano (2009). They predicted the social status of 127 primary school children with a targeted observation of teacher conduct. Longitudinal studies or experimental studies in particular may be able to provide better information about the directional effect. In this line, Chang (2004) used a quasi-experimental design to show that social acceptance of aggressive Chinese students was better when the teacher showed understanding and a relaxed approach to these children. Similarly aggressive children were considerably less popular if the teacher reacted harshly and uncompromisingly to the aggressive children in their classes. In a more recent longitudinal study, Hendrickx et al. (2016) showed that the amount and valence of teacher feedback with regard to a target schoolchild at measurement point one could predict the classmates' perception at measurement point two and the social acceptance of schoolchildren at measurement point three. However, as the teacher feedback was only provided in the study at the first measurement point, it is impossible to interpret direct cause and effect relationships in this study. Two of the very few experimental studies looking at the direction of this effect was carried out by White and Kistner (1992) and White and Jones (2000). In their studies, the researchers showed a video of an ordinary classroom situation with four primary

schoolchildren to another group of primary school aged children. While all experimental groups were shown the same video sequence, the researchers systematically changed the auditory teacher feedback track between groups. The study showed that negative auditory feedback could have a major negative influence on the social perception of schoolchildren. However, the study included only behavioural feedback in the experimental manipulation. In a further computer-based experimental study with 446 primary school children (grades 3 and 4), Huber, Gebhardt, and Schwab (2015) and Schwab, Huber, and Gebhardt (2016) investigated the influence of performance-related teacher feedback and the control information about having fun together on the social acceptance of a virtual schoolchild. The research group found high effects ($d = 2.45$) of the valence of teacher feedback on social acceptance. The effects of the control information were also significant ($d = 1.34$). Furthermore, negative feedback had a significantly higher influence on the subjects than positive feedback. The high effect sizes in this study, however, are difficult to interpret. The control information was subdivided and included both information on how well a child is able to play the card game UNO and how much fun it is to play with that child. However, two aspects of this design may have contributed to the high effect sizes of the teacher feedback. First, the control information on the UNO card game in this study was highly specific and therefore may have been only relevant to a smaller proportion of the subjects. Secondly, the first part of the peer information on the virtual schoolchild's skill at UNO may have deterred particularly ambitious subjects and thus qualified the positive valence of this information.

The present study has three research aims, which can be derived directly from the existing state of research. First, the weaknesses of previous studies should be addressed in this study. Thus, we investigate whether teacher feedback has an effect on the social perception of schoolchildren even under stricter conditions. Second, an overview of existing studies shows that teacher feedback has so far only been researched in schoolchildren without special educational needs, with two exceptions (Huber, Gebhardt, and Schwab 2015; Schwab, Huber, and Gebhardt 2016). However, there are currently no studies on the effects of teacher feedback for the group of schoolchildren with disabilities. The present study intends to close these research gaps. Third, there are very few experimental studies on the effects of teacher feedback on social acceptance in school. Thus, the present study is a replication study.

Research questions

Inclusive education hopes to support students with SEN. Although, there are indications for an influence of teacher feedback on social acceptance in schools, there remains a knowledge gap regarding the cause and effect of teacher feedback regarding children with various kinds of special educational needs. This study will bridge this gap in research using an experimental design focused on the direction of the effect. Therefore, the effects of feedback on schoolchildren with mental and physical disabilities will be compared to the effects on schoolchildren without disabilities. First, the acceptance of children with disabilities compared to children without disabilities will be assessed. This will be used to investigate the validity of the experiment and therefore if it can be integrated with the extant research.

Hypothesis 1: A child with a mental disability is the least accepted and the child without migrant background and without any visible disability is the most accepted during our pretest.

Hypothesis 2: Students from inclusive classes as well as students from special schools are more accepting of children with disabilities compared to students from regular classes or students from special schools.

Second, we will investigate the extent to which the valence of the feedback changes social acceptance in primary school children. We expect that both independent variables (teacher feedback and control information on how much fun it is to play with the student) have a significant influence on the dependent variable (social acceptance of each child) in our pretest-posttest design. Positive feedback in both independent variables will enhance social acceptance, negative feedback will have a negative impact on the acceptance rating. In line with a previous experiment (Huber, Gebhardt, and Schwab 2015; Schwab, Huber, and Gebhardt 2016), we expect the effect size of the teacher feedback to be higher than the effect size of the control information (fun to play with). Thus, we examined these hypotheses:

Hypothesis 3: Feedback has a main effect on social acceptance of children with disabilities.

Hypothesis 4: The effect size of teacher feedback is higher than the effect size of the control information.

Hypothesis 5: Negative feedback has a higher impact than positive feedback.

Method

Sample

Participants of our study were primary school-aged children – 627 students in Germany (Brandenburg and Bavaria), 227 students in Austria (Styria) and 102 students in Switzerland (Geneva) in grades 3–6. Overall, 956 children participated (434 female, 522 male), with an average age of 10.02 years ($SD = 1.47$). 501 students were natives, 437 students had a migration background and 18 students did not answer this question. This number included 275 students attending regular classes without any children with disabilities, 353 students attending special schools and 328 students attending inclusive classes in which at least one child with a disability was present. There were approximately 53 students with special educational needs, but the exact number is unknown because some of the inclusive settings were unlabelled. Therefore, we will not present specific analyses for this group.

Procedure and material

The data were gathered with a computer-based experimental study, and required software was developed solely for this study. Trained research assistants introduced the students to the experiment and told participants that there were no right or wrong answers. The participants completed the approximately 15-min computer task on their own. The research assistant was present at all times. In order to avoid distortion due to poor reading competencies, all information was presented both in writing and orally (via headphones). The children were able to replay the auditory information as many times as they wished. All participants started with a training phase in which they were introduced to a five-point rating scale of social acceptance using smileys and ranging from 1 (I don't want to sit next to this child at all) to 5 (I would very much like to sit next to this child), shown in Figure 1. This procedure is based on research on students' acceptance in school suggesting that such

Figure 1. Excerpt of the computer task (posttest).

sociometric questions are suitable measures of social hierarchies in school (Asher and Coie 1990; Bless and Mohr 2007; Coie and Dodge 1988; Kavale and Forness 1996; Newcomb, Bukowski, and Pattee 1993; Pettillon 1978). If they did not choose the correct smileys during this training phase, the assistant explained the rating scale again and another training followed until the students were familiar with the scale. This training phase was immediately followed by an experimental phase. During the pretest, participants were asked to imagine children shown in photos, one by one, being their new classmates. The children showed neutral facial expressions and showed no significant differences regarding their attractiveness in a pilot study. In this way, each participant rated their social acceptance of four children – one child with a physical disability, who was sitting in a wheelchair (child with PD), one child with Down Syndrome (child with DS) and one child with a migrant background (child with MB) and a control child without any visible disability (control child). The photos were acquired from online databases (physical disability and migrant background) or photographed in German schools (child without disability and DS) to ensure that the photographed children were not known to the participants. No further explicit information on the disability or the migrant background was given. In accordance with Enea-Drapeau, Carlier, and Huguet (2012), we assume that in this context only implicit information can reveal negative attitudes or rejection. First, the child without any disability served as a control child. Second, we chose a child with DS as he or she could be easily recognised as different from other children, because of the distinctive physical features people with DS usually show (Enea-Drapeau, Carlier, and Huguet 2012). Third, we chose the child with a wheelchair as he or she served as a prototyped representation of a physical disability and last, we included the child with a migrant background due to the recent ongoing discussion of including refugee children in German classrooms.

In order to avoid gender bias we presented photos containing boys to male participants and photos containing girls to female participants. Fictitious names for the photographed children were chosen using a list of least common names within the age group of our

participants. The experiment as a whole had to be translated from German into French in order to be usable in the French speaking districts of Switzerland. After seeing each photo, the participants were asked to rate their social acceptance on the same five-point Likert scale used during the training phase. After the first rating of each photo, the participants were given additional information. First, they were presented a positive or negative feedback given by the teacher to each child. Second, information about how much fun it is to play with the child was given. This leads to the four different feedback combinations shown in Table 1. Both types of information were randomised on each trial and for each participant. After the participants received this information, we conducted a posttest. They were asked to rate their social acceptance again using the same rating scale. At the end of the experiment, we conducted a manipulation check to determine if the participants noticed the children in the photos having a disability or migrant background. Only children who did not fail this check were included in the further data analysis for research questions 3 and 4. Additionally, we recorded the age, school year, school type (special school, regular school, inclusive school) and gender of each participant.

Data analysis

All analyses were calculated with SPSS 24. We used analyses of the general linear model to answer the research questions. For hypotheses 1 and 2, the pretest results were used as the dependent variable. For hypotheses 3–5, we examined the change of the social acceptance as dependent variable. To avoid ceiling effects for hypotheses 3–5, we filtered out students with extreme scores (1 and 5) in the pretest.

Results

Hypothesis 1 predicted that the child with DS would be the least accepted. Furthermore, we expected that the control child without any visible disability would be the most accepted. Data on social acceptance was collected within an inner-subject-design. Therefore, an analysis of variance for repeated measures for the four student types (child with PD, child with

Table 1. Transcriptions of teacher feedback (task-oriented) and the control information (information on how much fun it is to play with the child).

Version	Teacher feedback (task-oriented)		Control information (fun to play with)	
	Value	Information	Value	Information
1	+	During class he/she is often praised by the teacher. The teacher says 'Great! You were very attentive!'	+	It is a lot of fun to play with him/her. He/she has a lot of ideas
2	–	During class the teacher often scolds him/her. The teacher often says: 'Will you finally pay attention!?''	–	It is not so much fun to play with him/her. He/she does not know many games
3	+	During class he/she is often praised by the teacher. The teacher says 'Great! You were very attentive!'	+	It is a lot of fun to play with him/her. He/she has a lot of ideas
4	–	During class the teacher often scolds him/her. The teacher often says: 'Will you finally pay attention!?''	–	It is not so much fun to play with him/her. He/she does not know many games

DS, child with DS, control child) was calculated. Gender was added as a control variable. The results showed a significant main effect for the different vignettes ($F [3, 952] = 378.57, p < .01, \eta^2 = .54$) and a significant interaction between the different vignettes and gender ($F [3, 952] = 20.61, p < .01, \eta^2 = .06$). Post-hoc analyses showed that the social acceptance of the control child was rated most positively, for both, male and female participants, followed by the child with PD, while the child with DS was rated most negatively regarding his or her social acceptance ($p < .01$). The comparison of children with and without migrant background showed that females rated both types of children similarly while males rated their social acceptance of children without migrant background more positively ($p < .01$).

In order to examine hypothesis 2, a multivariate analysis of covariance was computed. In order to target each group precisely, social acceptance of children with PD, children with DS and children with MB were individually compared with to the control child. As a dependent variable, the relative social acceptance (SA') of each virtual classmate with disability or migrant background was included in the data analysis ($SA'DS = SADS - SAcon$; $SA'PD = SAPD - SAcon$; $SA'MB = SAMB - SAcon$). The school setting was used as the independent variable. As seen in Figure 2, a multivariate analysis of covariance showed a significant multivariate effect of the student type ($F [2, 950] = 342,167; \eta^2 = .264; p < .01$) and a small but significant interaction effect for student type and school type ($F [6, 950] = 7079; \eta^2 = .023; p < .01$). Post-hoc analyses showed only a significant school type effect for the SA' scores of the migrant background child. Children attending a special school showed a higher social acceptance (higher SA' scores) of the migrant background child compared to students attending an inclusive or non-inclusive regular school. For both, the PD child and DS child, SA' scores did not differ between the school types. In total, the results don't mirror any evidence for an effect of the attended school type on social acceptance of children with SEN.

To test hypotheses 3 and 4, we analysed if teacher feedback can change our subjects' social acceptance of the four virtual students. Specifically, we calculated the change between

Figure 2. Effects of school type as a reference of general social acceptance between students with a physical disability (PD), child with Down syndrome (DS), child with a migrant background (MB) and a control child (CO).

pre- and post-test, which was taken as a dependent variable. Because valence of the teacher feedback information (positive versus negative teacher feedback) and the valence of the control information (much fun while playing versus little fun while playing) were randomly chosen for each subject, we can only analyse the effects for every student type in a separated General Linear Model (GLM). The teacher feedback and the control information were included in the GLM as two two-stepped independent variables. For this data analysis, we filtered out students with extreme scores (1 and 5) in the pretest because the extreme scores restricted their subsequent ratings. In Table 2, the results of each of the four GLMs are presented. For all student types, the effect sizes of teacher feedback on social acceptance were significant. The η^2 scores varied between $\eta^2 = .127$ for the MB child and $\eta^2 = .168$ for the control child. The effect sizes for the two children with SEN were comparable ($\eta^2 = .129$ for the DS-child and $\eta^2 = .148$ for the PD child). Based on these results we can confirm hypothesis 3. For hypothesis 4, we must take note that the effects of the control information (η^2 between $\eta^2 = .200$ and $.235$) were moderately higher than the effect sizes for the teacher feedback information. Hypothesis 4 must therefore be rejected. However, with a Cohen's d between $d = .76$ and $d = .90$, teacher feedback had a significant effect on the change of the social acceptance in our experiment.

Finally, hypothesis 5 examined the impact of positive versus negative feedback. Both, positive and negative feedback resulted in a change of acceptance rating, varying between .79 and 1.21 points. In almost all vignettes (except for DS) we found a higher influence of negative feedback than positive feedback as shown in Figure 3.

Discussion

This study investigated the influence of teacher feedback on the social acceptance of students with and without disabilities (physical disability and DS) and students with and without migrant background. To allow causal interpretation of the results and to avoid unethical methods (giving negative feedback to real students) we developed an experimental computer task and designed an experimental design with randomised positive and negative feedback about virtual children.

With a focus on the social acceptance of students from marginalised groups, i.e. students with migrant background and students with disabilities (see hypothesis 1), the present experimental study showed that students without disabilities are more accepted than students with disabilities. Further, the kind of disability plays an important role as students with physical disabilities (sitting in a wheelchair) were more accepted compared to students with

Table 2. Univariate effects on social acceptance for each photo.

Photo	Feedback type	<i>N</i>	<i>F</i>	df	η^2	<i>d</i>
Child with PD	Fun while playing	748	202,111	1	0.214*	1.04
	Teacher feedback		129,503	1	0.148*	0.83
Child with DS	Fun while playing	721	205,169	1	0.222*	1.07
	Teacher feedback		106,409	1	0.129*	0.77
Child MB	Fun while playing	669	166,749	1	0.200*	1.00
	Teacher feedback		96,430	1	0.127*	0.76
Control child	Fun while playing	692	211,453	1	0.235*	1.11
	Teacher feedback		139,391	1	0.168*	0.90

* $p < .05$.

Figure 3. Changes of acceptance ratings in positive and negative feedback situations between students with a physical disability (PD), child with Down syndrome (DS), child with a migrant background (MB) and a control child (CO).

intellectual disabilities (DS). Based on our very high effect sizes, there is an urgent need to foster social acceptance of students with disabilities, especially when looking at the many negative long-term consequences of problems in social participation. These results are in line with previous research about social acceptance of students with disabilities (see, e.g. Bless and Mohr 2007; Bossaert et al. 2011; Frostad and Pijl 2007; Huber and Wilbert 2012; Huber, Gebhardt, and Schwab 2015; Krull, Wilbert, and Hennemann 2014; Schwab et al. 2016). The expected difference in social acceptance between students with and without migrant background (see e.g. Eckhart 2005; Gash et al. 2000; Gasser et al. 2012; von Grünigen et al. 2012; Madsen et al. 2016; Nowicki and Sandieson 2002) was only found in male students, while females accepted both types of students similarly. This leads to two important aspects: on the one hand, not only are students with disabilities at a higher risk of low social participation, but also other students of marginalised groups like migrant background (students with migrant background were less socially accepted at least in the male sample). However, research and intervention programs should look into this topic, focusing on heterogeneity of students in a broader sense (and not simply focus on disability or interculturality). On the other hand, according to the minor interaction effect girls seem to react less based on stereotypes towards students with SEN than boys, as there was no gender difference in social acceptance of the student without migrant background and without any kind of disability.

Furthermore, the present study aimed to find out whether attending an inclusive school influences the social acceptance of a student with a visible disability (see hypothesis 2). Comparing the social acceptance of students from different school settings, we expected (with regard to the intergroup contact theory which hypothesises positive effects of intergroup contact on reducing stigmatisation; see, e.g. Armstrong et al. 2016) that students from special classes will accept peers with disabilities more than students from inclusive classes and that students from regular classes will be the least accepting of peers with disabilities. However, this expectation was not confirmed by our results. In general, only very small effects for school setting were found. The first result of these group comparisons regarding children without disabilities indicate that students from inclusive classes tend to accept others better

than students from regular or special classes do. In contrast, students from special schools compared to students from inclusive and regular classes accepted the child with migrant background better. An explanation of this could be that in special schools, the amount of students with migrant background is sometimes overrepresented and this result could indicate a kind of a homophily effect, the preference to be among similar others (McPherson, Smith-Lovin, and Cook 2001). We did not find the expected positive effects of inclusive schooling on the acceptance of children with disabilities. While students from special classes would have more contact to peers with disabilities, students with DS and students sitting in a wheelchair are not very common in inclusive classes. Most students with disabilities in Austria, Germany and Switzerland have a learning disability. However, as a learning disability is not a visible disability and cannot easily be used for an experiment with photos, it was not possible to solve this problem within the present experiment. Thus, the present results may indicate that students in inclusive education previously received different information on how to support and treat peers with disabilities.

The main aim of this experimental study was to analyse the effects of positive and negative teacher feedback on students' social acceptance (hypothesis 3-5). As expected, our study showed that teacher feedback had a significant effect on social acceptance. In contrast to our expectations, this effect was weaker than the effect of our control information (fun while playing). These results could not replicate the high effect sizes of a comparable experiment (teacher feedback: $d = 2.35$; fun playing the UNO cards game: $d = 1.32$), which were published by Schwab, Huber, and Gebhardt (2016). Furthermore, we could not confirm that the effect size of the teacher feedback was higher than the effect size of a control information. In the current study, the control information influenced the social acceptance more strongly than teacher feedback. One explanation for this unexpected result could be that Schwab, Huber, and Gebhardt (2016) used fun while playing a very specific card game (UNO) as control information, which might be not relevant to all subjects in their study. In our study, we used a more general control information (fun while playing in general), which might be more relevant to the subjects. Therefore, every student could think about a specific game (e.g. football) which is fun to him or her. Also, teachers' feedback was simply related to achievement and attention. Therefore, if students are not that interested in school achievement and the school course in general, this feedback could be somewhat less important to them. In sum, teacher feedback had a significant influence on the change of social acceptance, which was only moderately weaker than the influence of a control variable, which is highly relevant to primary school children in everyday school life.

Some general limitations

First, our research used an experimental design, which could indicate lower ecological validity of our results. Still, we believe that we need more experimental research in education in order to analyse effects without confounding variables. As real situations in schools are extremely complex, this would not be possible in a field study. Nonetheless, in a next step, it will be necessary to look at our findings in real school situations. For instance, within video observation researchers could focus on real teacher feedback, which is not dichotomous in nature (positive versus negative) but rather more differentiated (e.g. verbal or nonverbal, weak and strong, personal and task-orientated, teacher and peer). Second, we showed pictures to prime information about disability or migrant background, and we did not give any

further information. Thus, we did not know what exact features our participants associated with the pictures. Therefore, the judgments could be on physical appearance (Kleck, Richardson, and Ronald 1974), rather than on the presence or absence of a disability or a migrant background. While this is hardly possible for students with mental disabilities, one could focus on students with hearing impairments. With a focus on hearing impairments, it would be easy to use pictures of the same students once with a hearing aid and once without.

Furthermore, the order of the pictures presented should be randomised in future studies to avoid effects of comparison to the previously viewed photo. Although we conducted a manipulation check, we cannot rule out that the outer appearance of the child with DS (and not the disability) led to the lower rating scores. Third, the operationalisation of social acceptance was based solely on sitting next to a classmate. A replication could focus on working together on a cooperative project with consequences on grading to look for a different effect. An additional limitation is that the teacher feedback focused strongly on achievement, while the control information (fun to play with) focused strongly on indirect aspects of social behaviour. Previous literature regarding social participation of students with disabilities has already made it clear that students with disabilities are less accepted because they show less positive social behaviour and less social competencies (Huber, Gebhardt, and Schwab 2015).

Conclusion

With regard to the practical dimension of inclusive education, important guidelines for the promotion of social acceptance can be derived from the current study. First, teachers can provide an important starting point to support students' social acceptance and prevent students from being rejected in their classes by using positive feedback. Second, classroom management (as method to prevent teachers from giving too much negative feedback) and frequent supervision (as a method to reflect teacher's attitudes towards children with SEN) are two important methods to (directly or indirectly) influence teachers' (feedback) behaviour in the classroom.

The results of the present study have implications for further research in the field of social participation of marginalised students. Generally, the findings confirmed that students with disabilities are at a high risk of low social acceptance. Further, results indicate that relationships in classroom as a social reference could improve the social acceptance of a specific child. Teacher feedback could lead to a greater acceptance of all peers, whether or not they have a migrant background or a disability. If we take into account that the control information could also be seen as a specific kind of peer feedback, peers seem to play a bigger role. This indicates that future research should have a stronger focus on peer feedback and investigate exactly which aspects of peer feedback influence students' acceptance the most. A next step should be to look at real classes in the field in order to confirm the present findings in non-experimental settings and to implement the findings of this study in intervention programs. In addition, it seems to be a good strategy to improve students' attitudes towards peers with disabilities (de Boer et al. 2014; Godeau et al. 2010; Rillotta and Nettelbeck 2007) and towards peers with migrant background and other risk factors (e.g. low socioeconomic background).

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No potential conflict of interest was reported by the authors.

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