

Hellmich, Frank; Löper, Marwin Felix

**Primary school students' attitudes and their perceived teacher behavior towards peers with special educational needs**

*Empirische Sonderpädagogik 10 (2018) 2, S. 151-166*



Quellenangabe/ Reference:

Hellmich, Frank; Löper, Marwin Felix: Primary school students' attitudes and their perceived teacher behavior towards peers with special educational needs - In: Empirische Sonderpädagogik 10 (2018) 2, S. 151-166 - URN: urn:nbn:de:0111-pedocs-160032 - DOI: 10.25656/01:16003

<https://nbn-resolving.org/urn:nbn:de:0111-pedocs-160032>

<https://doi.org/10.25656/01:16003>

in Kooperation mit / in cooperation with:

Pabst Science Publishers <https://www.psychologie-aktuell.com/journale/empirische-sonderpaedagogik.html>

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# EMPIRISCHE SONDERPÄDAGOGIK

ISSN 1869-4845

10. Jahrgang 2018 | Heft 2



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10. Jahrgang · Heft 2 · 2018

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### Verlag:

Pabst Science Publishers  
Eichengrund 28  
D-49525 Lengerich  
Tel. + 49 (0) 5484-308  
Fax + 49 (0) 5484-550  
E-Mail: pabst.publishers@t-online.de  
www.pabst-publishers.de  
www.psychologie-aktuell.com

### Erscheinungsweise:

4 x jährlich

### Preise:

(Jahresabonnement: 40,- €  
Einzelheft: 15,- €  
incl. MwSt. und Versand)

### Verlagsredaktion:

Erika Wiedenmann  
wiedenmann@pabst-publishers.com

### Herstellung:

Armin Vahrenhorst  
vahrenhorst@pabst-publishers.com

### Administration:

Silke Haarlammert  
haarlammert@pabst-publishers.com

### Druck:

KM-Druck, D-64823 Groß-Umstadt

### Titelbild:

Joseb Smoktun

ISSN 1869-4845 (Printausgabe)

ISSN 1869-4934 (Internetausgabe)

Empirische Sonderpädagogik, 2018, Nr. 2, S. 151-166  
ISSN 1869-4845 (Print) · ISSN 1869-4934 (Internet)

## Primary School Students' Attitudes and their Perceived Teacher Behavior towards Peers with Special Educational Needs

*Frank Hellmich & Marwin Felix Loeper*

*Paderborn University, Germany*

### Abstract

Primary school students' attitudes towards peers with special educational needs (SEN) are important prerequisites for social participation in the inclusive classroom. However, determinants of these attitudes have not been identified yet. We examined  $N=753$  primary school students' attitudes towards peers with learning disabilities and towards peers with social or emotional disabilities. The students also provided information on their contact experiences with peers with SEN, their self-efficacy beliefs concerning their interpersonal skills, and their perceptions of their teachers' behavior towards peers with SEN. The results indicate that the students' attitudes towards peers with SEN are positive in general. As expected, their attitudes towards peers with social or emotional disabilities are significantly less positive than towards peers with learning disabilities. The results of a structural equation model underline that the attitudes towards peers with SEN can be explained by the students' contact experiences, self-efficacy beliefs, and perceived teacher behavior towards peers with SEN. Effects of children's perceptions of their teachers' behavior in the classroom on their attitudes towards peers with learning disabilities are mediated by their self-efficacy beliefs.

Keywords: Attitudes, Special Educational Needs, Perceived Teacher Behavior, Self-Efficacy Beliefs, Contact Experiences.

### **Einstellungen von Grundschulkindern im Zusammenhang mit ihrem wahrgenommenen Lehrkraftverhalten gegenüber Peers mit sonderpädagogischem Förderbedarf**

#### **Zusammenfassung:**

Einstellungen von Grundschulkindern gegenüber ihren Mitschülerinnen und Mitschülern mit sonderpädagogischem Förderbedarf werden als wichtige Voraussetzungen für die soziale Partizipation im inklusiven Unterricht betrachtet. Gegenwärtig sind Determinanten für die Einstellungen von Grundschulkindern gegenüber ihren Peers mit Förderbedarf weitgehend unklar. Vor diesem Hintergrund haben wir in unserer Studie die Einstellungen von  $N=753$  Grundschülerinnen und -schülern gegenüber ihren Peers mit einem Förderbedarf im Bereich Lernen und in der sozial-emotionalen Entwicklung untersucht.



Zusätzlich wurden die an der Untersuchung beteiligten Kinder gebeten, im Rahmen eines Fragebogens Auskunft über ihre vorhandenen Kontakte zu Kindern mit sonderpädagogischem Förderbedarf, ihre Selbstwirksamkeitsüberzeugungen in Bezug auf ihre sozialen Fähigkeiten sowie zu ihrem wahrgenommenen Lehrkraftverhalten gegenüber Peers mit Förderbedarf zu geben. Die Ergebnisse unserer Studie verdeutlichen, dass die befragten Grundschulkinder generell über positive Einstellungen gegenüber ihren Mitschülerinnen und Mitschülern mit Förderbedarfen im Lernen und in der sozial-emotionalen Entwicklung verfügen. Wie erwartet zeigt sich, dass die Einstellungen der befragten Kinder gegenüber Peers mit einem Förderbedarf im Bereich Lernen signifikant positiver ausfallen als gegenüber Peers mit einem Förderbedarf in der sozial-emotionalen Entwicklung. Die Befunde aus einem Stukturgleichungsmodell geben Hinweise darauf, dass die Einstellungen der Grundschulkinder durch ihre bisherigen Kontakte zu Peers mit Förderbedarf, ihre Selbstwirksamkeitsüberzeugungen sowie das von ihnen wahrgenommene Lehrkraftverhalten erklärt werden können. Der Effekt des wahrgenommenen Lehrkraftverhaltens auf die Einstellungen der befragten Kinder gegenüber Peers mit einem Förderbedarf im Bereich Lernen wird dabei durch ihre Selbstwirksamkeitsüberzeugungen mediiert.

**Schlüsselwörter:** Einstellungen, sonderpädagogischer Förderbedarf, Lehrkraftverhalten, Selbstwirksamkeitsüberzeugungen, Kontakte

## Introduction

### Overview

Children's attitudes towards peers with SEN are important prerequisites for the social participation of all primary school students in an inclusive classroom. The theory of social referencing (Feinman, 1992) considers the perceived behavior of reference figures (e.g., parents, teachers) as a key issue for the development of young children's attitudes. Currently, there is a lack of research on the importance of teaching related variables for primary school students' attitudes towards peers with SEN. Thus, we investigate the role of students' perceptions of their teachers' behavior towards peers with SEN as well as their contact experiences and self-efficacy beliefs as important determinants for their own attitudes.

We assessed primary school students' attitudes towards peers with learning disabilities and towards peers with social or emotional disabilities. We assume that the effects of children's perceptions of their teachers' behavior in the classroom on their attitudes towards peers with SEN are medi-

ated by their self-efficacy beliefs concerning their interpersonal skills. Based on Feinman's (1992) theory of social referencing, we hypothesize that children's perceptions of their teachers' behavior can increase or decrease their self-efficacy beliefs concerning their interpersonal skills. These processes are likely to affect children's attitudes towards peers with SEN. Furthermore, we expect effects in the students' contact experiences on their attitudes towards peers with SEN to be mediated by their self-efficacy beliefs. Based on the intergroup contact theory (Allport, 1954), we assume that the students' contact experiences lead to an increase of self-efficacy beliefs concerning interactions with peers with SEN. In this way, their attitudes towards peers with SEN could possibly be encouraged.

Few studies have examined the role of teachers' behavior towards children with SEN on primary school students' self-efficacy beliefs and their attitudes. Furthermore, there is a lack of empirical evidence for the mentioned correlations. Studies on the importance of teaching related variables on children's self-efficacy beliefs and their attitudes towards peers with SEN can create a strong basis for further teacher training to

promote social participation in inclusive schools.

### *Children's Attitudes towards Peers with SEN*

Social participation is an important prerequisite for inclusive learning in primary school education and a main condition for the success of inclusive learning environments. According to Koster, Nakken, Pijl, and van Houten (2009), social participation is indicated by four main themes: friendships/relationships, interactions/contacts, perceptions of pupils with special educational needs (SEN), and acceptance of children with SEN by their classmates. Current studies reveal that the majority of students with different special educational needs have a satisfying degree of social participation (Koster, Nakken, Pijl, & van Houten, 2010). However, compared to their typically developing peers, students with SEN have fewer and more unstable friendships, are less accepted by their classmates (e.g., Avramidis, 2013; Bossaert, Colpin, Pijl, & Petry, 2013; Frostad, Mjaavatan, & Pijl, 2011; Schwab, 2015a), and often feel lonely in the classroom (e.g., Bossaert, Colpin, Pijl, & Petry, 2012). Primary school students' attitudes towards peers with SEN are considered to be important determinants for the successful inclusion of all students in common teaching. According to Eagly and Chaiken (1993), an attitude can be defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). In this context, three different components of attitudes can be distinguished (Triandis, 1971). The cognitive component includes beliefs and opinions about an attitude object. Emotional expressions towards an attitude object belong to the affective component. The behavioral component includes interactions with an attitude object.

Several studies indicate that primary school students without SEN hold neutral to moderately positive attitudes towards their

peers with SEN in general (e.g., de Boer, Pijl, & Minnaert, 2012a; Schwab, 2015b). However, differences were found in primary school students' attitudes related to various characteristics and descriptions of SEN (de Boer, Pijl, Minnaert, & Post, 2014). Primary school students' attitudes towards peers with social or emotional disabilities are significantly less positive than towards peers with other disabilities (e.g., de Boer et al., 2012a; Laws & Kelly, 2005). For example, Schwab (2015b) shows that students' attitudes towards peers with SEN vary depending on the specific disabilities, which were presented in vignettes. Students' attitudes towards peers with physical disabilities or learning disabilities were significantly more positive than students' attitudes towards peers with mental disabilities or social or emotional disabilities. We thus expect primary school students' attitudes towards peers with social or emotional disabilities to be less positive than towards peers with learning disabilities.

### *Social Referencing, Children's Self-Efficacy Beliefs, and their Attitudes towards Peers with SEN*

It is still unclear what the roles are among parental or teachers' attitudes, their opinions, or even their behavior towards children with SEN for primary school students' attitudes towards peers with SEN. The theory of social referencing (Feinman, 1992) assumes that preschool and primary school children orient their attitudes and their behavior to those of important figures such as parents or teachers. Therefore, the theory of social referencing considers children's perceived behavior of these reference figures as a key issue for the development of their attitudes, habits, and behavior.

Currently, there is a lack of studies investigating these influences in school and out of school contexts on primary school students' attitudes towards peers with SEN. However, studies have investigated the importance of teachers' attitudes and their behavior in terms of role models for students'

peer acceptance (e.g., Chang, Liu, Wen, Fung, Wang, & Xu, 2004). In addition, studies concerning the social inclusion of students with and without SEN outline the impact of teachers' classroom practices on the social status of students with SEN in inclusive education (e.g., David & Kuyini, 2012; McAuliffe, Hubbard, & Romano, 2009).

In a study by de Boer, Pijl, Post, and Minnaert (2012b), parental and teacher attitudes towards children with SEN were considered as determinants for primary school students' attitudes towards peers with SEN. Parental attitudes were pointed out as important prerequisites for the students' attitudes. Contrary to expectations, the results did not confirm the importance of teachers' attitudes on primary school students' attitudes towards peers with SEN. De Boer et al. (2012b) assume that this result is due to the methodical approach of the study. Further findings indicate that teaching-related variables are closely linked to the development of attitudes towards peers with SEN. Schwab (2015b) showed that students' attitudes towards peers with SEN were explained by the class level. However, only a little of the variance of students' attitudes towards peers with SEN can be explained by the class level.

Thus, the results of several studies emphasize the importance of the attitudes of significant figures for primary school students' attitudes towards peers with SEN (de Boer et al., 2012b; Chang et al., 2004; David & Kuyini, 2012; Schwab, 2015b). However, there is still no empirical evidence for the role of teachers' attitudes and their behavior in terms of the development of primary school students' attitudes towards children with SEN. Based on Feinman's (1992) theory of social referencing, we assume that children's attitudes are influenced by their teachers' behavior. We also hypothesize that primary school students' perceptions of their teachers' behavior can increase or decrease their self-efficacy beliefs concerning their interactions with peers with SEN. Self-efficacy beliefs are defined as the students' own per-

ceived ability with regard to achieving specific aims (Bandura, 1997). One can assume that primary school students perceive themselves as more self-effective in interactions with peers with SEN if they can follow certain role models (e.g., teachers, parents). Currently, there are no empirical results concerning correlations between teachers' behavior towards children with SEN and primary school students' self-efficacy beliefs.

### *Children's Contact Experiences and their Attitudes towards Peers with SEN*

Contact experiences with peers with SEN are considered as important prerequisites for primary school students' attitudes towards peers with SEN. Allport's (1954) intergroup contact theory suggests that contact experiences generally lead to changes in individual attitudes. Several studies provide empirical evidence for the intergroup contact theory concerning individuals' contact experiences with disabled people and their attitudes towards them (e.g., Barr & Bracchitta, 2015; Keith, Bennetto, & Rogge, 2015). In a meta-analysis, Nowicki and Sandieson (2002) found correlations between students' attitudes towards peers with SEN and their participation in integrative or inclusive education. Students who had participated in inclusive education showed more positive attitudes towards peers with SEN than students in non-inclusive education. This result is based on a total of twenty studies from 1990 to 2000. Nowicki and Sandieson (2002) report a medium effect-size of  $d = 0.58$ : "The majority of studies in this category indicated that children in inclusive classrooms were more accepting of children with disabilities than were children attending non-inclusive classrooms" (Nowicki & Sandieson, 2002, p. 255).

A review by de Boer et al. (2012a) also shows that students' attitudes towards peers with SEN depend on sex, knowledge concerning peers with SEN, contact experiences with peers with SEN, and experiences of par-



ticipating in inclusive education. Additionally, Vignes, Coley, Grandjean, Godeau, and Arnaud (2009) investigated adolescents' attitudes towards peers with SEN. The results reveal that students who had friendships with peers with SEN have more positive attitudes towards peers with SEN than their classmates without such friendships.

In summary, students' attitudes towards peers with SEN seem to be closely correlated to their contact experiences in school or out of school contexts. However, the following question remains to be answered: what roles do contact experiences play for primary school students' self-efficacy beliefs concerning interactions with peers with SEN? Children's contact experiences probably favor their self-efficacy beliefs concerning their interpersonal skills, whereas a lack of contact experiences likely creates opposite effects. Children lacking contact experiences with peers with SEN do not develop sufficient interpersonal skills. Thus, their self-efficacy beliefs cannot be grounded on necessary individual experiences.

### *Children's Self-Efficacy Beliefs and their Attitudes towards Peers with SEN*

Primary school students' self-efficacy beliefs play an important role in their attitudes towards peers with SEN. Primary school students' highly pronounced self-efficacy beliefs can be observed in play or learning situations when they successfully deal with peers with SEN. Children's weakly pronounced self-efficacy beliefs are directly visible through restrained behavior towards peers with SEN. Thus, children are generally open-minded when they feel confident in interactions with peers with SEN.

Currently, there are hardly any studies concerning correlations between children's self-efficacy beliefs and their attitudes towards peers with SEN. However, there are only a few studies regarding relationships between children's attitudes towards peers with SEN, their behavioral intentions, their per-

ceived behavioral control, and their interactions with peers with SEN (Freitag & Dunsmuir, 2015; Roberts & Smith, 1999). The results of these studies reveal that children's interactions with classmates with SEN can be explained by their behavioral intentions to befriend. The results also show that children's behavioral intentions to befriend are predicted by their attitudes towards peers with SEN and their perceived control over interactions with peers with SEN (Freitag & Dunsmuir, 2015; Roberts & Smith, 1999). These results indicate a role of children's attitudes in their planned behavior towards peers with SEN. Thus, primary school students' attitudes towards peers with SEN could be closely related to their self-efficacy beliefs concerning interactions with peers with SEN. Appropriate verifications of this assumption are still pending.

## **Hypotheses**

Based on several research findings (e.g., de Boer et al., 2012a; Laws & Kelly, 2005; Schwab, 2015b), we hypothesize the following:

- (H<sub>1</sub>) Primary school students' attitudes towards peers with learning disabilities are significantly more positive than their attitudes towards peers with social or emotional disabilities.

With regard to inclusive education, it is still unclear whether primary school students' attitudes towards peers with SEN are influenced by their perceived teacher behavior towards students with SEN, and to what extent (e.g., de Boer et al., 2012b; Chang et al., 2004; David & Kuyini, 2012; McAuliffe et al., 2009). In addition, the role of primary school students' self-efficacy beliefs is unclear as well. However, studies indicate a relationship between children's attitudes and their planned behavior towards peers with SEN (Freitag & Dunsmuir, 2015; Roberts & Smith, 1999). In addition, research shows the

importance of primary school students' contact experiences for their attitudes towards peers with SEN (e.g., Barr & Bracchitta, 2015; de Boer et al., 2012a; Keith et al., 2015; Nowicki & Sandieson, 2002; Vignes et al., 2009). Therefore, we make the following hypothesis:

- (H<sub>2</sub>) Primary school students' attitudes towards peers with SEN can be significantly predicted by their perceptions of their teachers' behavior, their self-efficacy beliefs concerning their interpersonal skills, and their contact experiences.

We expect children's perceptions of their teachers' behavior towards peers with SEN to increase or decrease their self-efficacy beliefs. These processes lead to effects on primary school students' attitudes towards peers with learning disabilities and social or emotional disabilities:

- (H<sub>3</sub>) Effects of children's perceptions of their teachers' behavior in the classroom on their attitudes towards peers with SEN are significantly mediated by their self-efficacy beliefs concerning their interpersonal skills.

The last hypothesis follows Allport's (1954) intergroup contact theory. The increase of self-efficacy beliefs leads to more positive attitudes towards peers with SEN (Freitag & Dunsmuir, 2015; Roberts & Smith, 1999).

- (H<sub>4</sub>) Effects of children's contact experiences on their attitudes towards peers with SEN are significantly mediated by their self-efficacy beliefs with regard to their interpersonal skills.

Hypotheses H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub> were verified using a structural equation model, which is presented in Figure 1. The hypotheses were

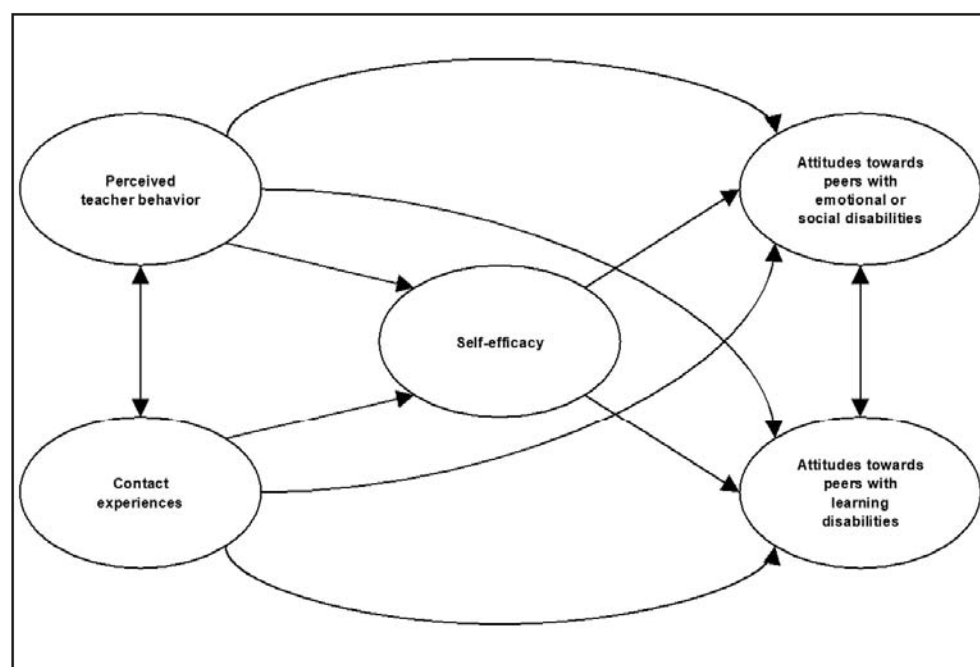


Figure 1. Hypothetical Structural Equation Model

examined by a cross-sectional study. Thus, causes and effects cannot be investigated. The results only provide information about correlations regarding the examined variables.

## Method

### Participants

Our study involved  $N = 753$  third and fourth grade students without SEN (358 girls, 385 boys) from 24 primary schools (48 school classes) in Germany (North Rhine-Westphalia). At the time of the survey, 376 of the students were in the third grade and 367 were in the fourth grade. Ten primary school students participating in our study did not provide information on grade or sex. The students' average age was nine years ( $M = 8.95$ ,  $SD = 0.81$ , range 7-11 years). None of the participants were taught in integrative or inclusive classrooms. The study was conducted in 2016. A total of 758 primary school students filled out the questionnaire, but only 753 children completed it.

### Measures

In our investigation,  $N = 753$  third and fourth grade primary school students' attitudes towards peers with SEN, their self-efficacy beliefs, their contact experiences, and their perceived teacher behavior were assessed using a questionnaire. The children were asked to rate their attitudes towards hypothetical peers with social or emotional disabilities and those with learning disabilities presented in gender-specific vignettes. Students with learning disabilities and social or emotional disabilities are common groups of students with disabilities represented in inclusive schools in Germany (Autorengruppe Bildungsberichterstattung, 2016). The vignettes were developed by Schwab (2015b) based on scales by de Boer et al. (2014) and used in our study in their original forms.

The vignette of a student with social or emotional disabilities is as follows: "Saskia/Hannes has just moved to your town and attends the same class as you. Saskia/Hannes is restless, noisy, and unfocused. She/he does not follow the teachers' instructions." The behavior of a student with learning disabilities is described in the following vignette: "Susanne/Markus has just moved to your town and attends the same class as you. Susanne/Markus indicates severe problems in reading, writing, and calculating. She/he needs much more time than other students at her/his age to do schoolwork."

In addition, children's attitudes towards these presented peers were assessed with the "Chedoke-McMaster attitudes towards children with handicaps scale" (CATCH; Rosenbaum, Armstrong, & King, 1986) using the short version (Bossaert & Petry, 2013). There are ten items in the scale, 'attitudes towards peers with social or emotional disabilities' (e.g., "I would feel good doing a school project with Saskia/Hannes";  $M = 3.23$ ;  $SD = 1.07$ ;  $\alpha = .94$ ) and the scale, 'attitudes towards peers with learning disabilities' (e.g., "I would introduce Susanne/Markus to my friends";  $M = 3.99$ ;  $SD = 0.78$ ;  $\alpha = .90$ ). Both scales consist of items to measure the affective and behavioral components of attitudes. Both components of primary school students' attitudes could not be separated by confirmatory factor analyses in each case, as already shown by previous studies (Bossaert & Petry, 2013; Schwab, 2015b).

Furthermore, a scale was applied to investigate children's self-efficacy beliefs (7 items; e.g., "If a classmate has learning problems, it's easy for me to help her/him";  $M = 4.11$ ;  $SD = 0.73$ ;  $\alpha = .82$ ) following Wheeler and Ladd (1982). Contact experiences of primary school students with peers with SEN (7 items; e.g., "I have often played with someone like Saskia/Hannes/Susanne/Markus";  $M = 2.43$ ;  $SD = 1.26$ ;  $\alpha = .92$ ) were measured by a scale developed based on Rosenbaum et al. (1986). Finally, the students were asked to rate their perceived teachers' behavior towards the presented



peers in the vignettes (8 items; e.g., "My teacher endeavors that Saskia/ Hannes/Susanne/Markus can participate in the classroom";  $M = 4.34$ ;  $SD = 0.67$ ;  $\alpha = .87$ ). We developed this questionnaire scale, 'Perceived teacher behavior', based on the scale from Rosenbaum et al. (1986). For each item, the students rated their agreement on a 5-point Likert scale (1 = totally disagree to 5 = totally agree).

The questionnaire scales that we developed or adapted in our study could not be empirically tested in preliminary studies. Thus, there are restrictions concerning the validity of the instruments. However, the questionnaire scales could be differentiated by factor analyses. For example, the items of the scales 'attitudes towards peers with social or emotional disabilities' and 'attitudes towards peers with learning disabilities' could clearly be separated. Table 1 presents the cross-correlation matrix concerning the measured variables. The individual questionnaire scales correlate only marginally with each other. Construct-related scales correlate higher than questionnaire scales that are not construct-related. For example, the correlation is  $r = .48$  ( $p \leq .001$ ) between primary school students' attitudes towards peers with social or emotional disabilities and their attitudes towards peers with learning disabilities. However, the correlation value between primary school students' self-efficacy beliefs and their contact experiences is only  $r = .11$  ( $p \leq .05$ ).

### Procedure

The questionnaire was implemented in one lesson (45 minutes) during regular school days. Two trained research assistants were responsible for the implementation of the questionnaire in the classrooms. The questionnaire items were read out to the children step by step so all of them could understand the individual items and make their decisions.

### Data Analyses

We applied a one-sample *t*-test to test hypothesis  $H_1$  of differences between primary school students' attitudes towards peers with learning disabilities and social or emotional disorders (Bortz & Schuster, 2010). To evaluate the other hypotheses, we calculated a structural equation model in Mplus (version 6; Muthén & Muthén, 1998-2010). MLR-estimation algorithm was used to estimate the model parameters in the analysis. The MLR-estimation algorithm is robust against a non-normal distribution of the data (Muthén & Muthén, 1998-2010). Missing data were not imputed, but the Full-Information-Maximum-Likelihood Method (FIML; Muthén & Muthén, 1998-2010) was applied. The FIML leads to expected and efficient parameter estimates based on raw data and the assumption that missing values are 'missing at random' (which means they are not dependent on missing values but on observed values). The complex design option (Muthén & Satorra, 1995) was used to take into account the multi-level structure of the data (the clustering effect of students nested within classes). The design effect was taken into consideration when calculating the standard errors and the model fit.

In order to estimate the model fit, a cut-off value of  $\chi^2/df \leq 3.00$  was used as a criterion for the acceptance of the empirical model (Homburg & Giering, 1996). We chose a value of  $\geq .90$  as a criterion for a good fit of the Comparative Fit Index (CFI) and the Tucker-Lewis-Index (TLI) (Byrne, 2012). We determined cut-off values of the Root Mean Square Error of Approximation (RMSEA) according to Browne and Cudeck (1993) as follows: good model fit ( $\leq .05$ ), acceptable model fit ( $\leq .08$ ), unacceptable model fit ( $\geq .10$ ). The *p*-close-value was set to be  $\geq .05$ .



Results

The descriptive statistics concerning primary school students' responses on the questionnaire scales are presented in Table 1. The results indicate positive attitudes of primary school students towards peers with SEN. Supporting hypothesis H<sub>1</sub>, the students' attitudes towards peers with social or emotional disabilities are significantly less positive than their attitudes towards peers with learning disabilities ( $M=3.23$ ,  $SD=1.07$  versus  $M=3.99$ ,  $SD=0.78$ ;  $t=20.50$ ;  $df=750$ ;  $p\leq .001$ ). Furthermore, the results illustrate that the children evaluate their teachers' behavior towards peers with SEN as positive in general ( $M=4.34$ ,  $SD=0.67$ ). Primary school students have high self-efficacy beliefs concerning their interpersonal skills in the inclusive classroom ( $M=4.11$ ,  $SD=0.73$ ). In terms of contact towards peers with SEN, they provided low experiences ( $M=2.43$ ,  $SD=1.26$ ). However, the standard deviation regarding the children's responsiveness to this questionnaire scale underlines a significant variance below and above the theoretical scale mean.

The cross-correlation matrix concerning the measured variables is also represented in Table 1. The correlations implemented in the table are latent. Supporting hypothesis H<sub>2</sub>, low to intermediate bivariate correlations were found between primary school students' attitudes towards peers with social or emotional disabilities and the perceived teacher behavior ( $r=.30$ ;  $p\leq .001$ ), contact experiences ( $r=.26$ ;  $p\leq .001$ ), and self-efficacy beliefs ( $r=.21$ ;  $p\leq .001$ ). Furthermore, primary school students' attitudes towards peers with learning disabilities also correlate with the perceived teacher behavior ( $r=.43$ ;  $p\leq .001$ ), contact experiences ( $r=.19$ ;  $p\leq .001$ ), and self-efficacy beliefs ( $r=.34$ ;  $p\leq .001$ ).

Figure 2 shows the structural equation model with standardized estimates for the verification of correlations between primary school students' attitudes towards peers with SEN, self-efficacy beliefs, contact experiences, and perceived teacher behavior towards peers with SEN in the classroom. The structural equation model was calculated in consideration of the two control variables 'sex' and 'grade'. In the figure, paths are dis-

Table 1: Summary of Intercorrelations and Descriptive Statistics for the Measured Variables

|   | (1)    | (2)    | (3)    | (4)    | (5)  |
|---|--------|--------|--------|--------|------|
| (1) Teacher behavior  |        |        |        |        |      |
| (2) Contact experiences   | .09    |        |        |        |      |
| (3) Self-efficacy beliefs   | .34*** | .11*   |        |        |      |
| (4) Attitudes towards peers with social or emotional disabilities | .30*** | .26*** | .21*** |        |      |
| (5) Attitudes towards peers with learning disabilities            | .43*** | .19*** | .34*** | .48*** |      |
| M   | 4.34   | 2.43   | 4.11   | 3.23   | 3.99 |
| SD  | 0.67   | 1.26   | 0.73   | 1.07   | 0.78 |
| Min   | 1.00   | 1.00   | 1.00   | 1.00   | 1.00 |
| Max   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00 |
| Md  | 4.50   | 2.14   | 4.29   | 3.30   | 4.10 |

Note. \* $p\leq .05$ , \*\* $p\leq .01$ , \*\*\* $p\leq .001$   
Annotations: 1 =totally disagree, 2 =partly disagree, 3 =undecided, 4 =partly agree, 5 =totally agree

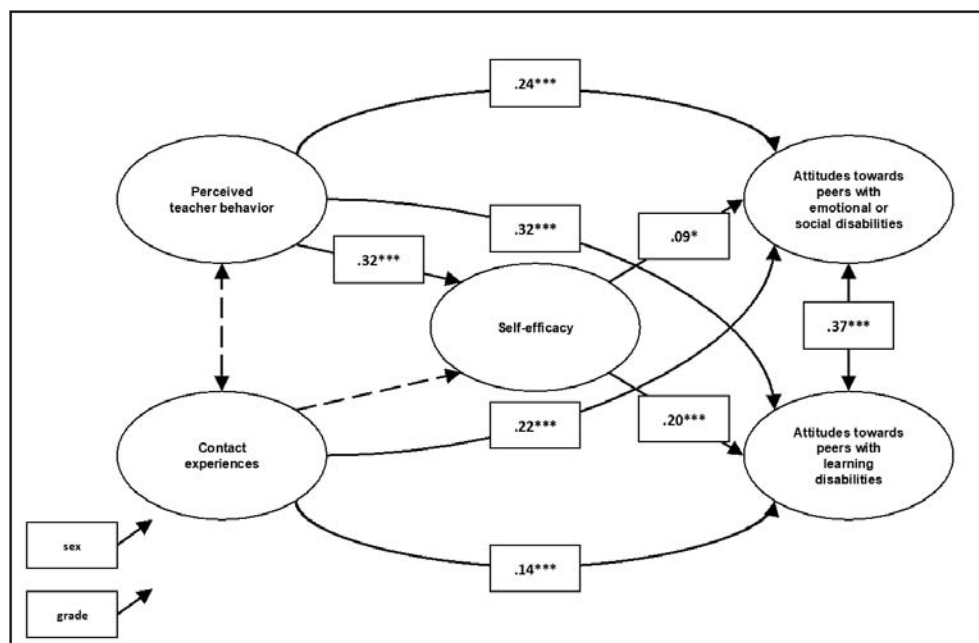
played as solid lines. Non-significant paths are illustrated as dashed lines.

Standardized factor loadings from the confirmatory factor analysis are presented in Table 2. In addition, standardized beta values of all relationships in the structural equation model are provided in Table 3.

The analyses indicate that the empirical structural equation model shows a good fit to the theoretical model structure:  $\chi^2 = 2122.50$ ,  $df = 883$ ,  $\chi^2/df = 2.40$ . The sizes of the  $CFI = .91$  and the  $TLI = .90$  illustrate good fits of the empirical model in comparison to the theoretical model structure. The  $RMSEA$  also shows a good value with  $RMSEA = .04$  ( $pclose = 1.00$ ). In addition, Figure 2 includes the standardized estimates for the correlations of the variables.

Supporting hypothesis  $H_2$ , the results of the SEM indicate that primary school students' attitudes towards peers with social or emotional disabilities can be explained by their perceived teacher behavior ( $\beta = .24$ ;  $p \leq .001$ ), their contact experiences ( $\beta = .22$ ;  $p \leq .001$ ), and their self-efficacy beliefs

( $\beta = .09$ ;  $p \leq .05$ ) with a 17% variance explanation. Moreover, primary school students' attitudes towards peers with learning disabilities are predicted by their perceived teacher behavior ( $\beta = .32$ ;  $p \leq .001$ ), their contact experiences ( $\beta = .14$ ;  $p \leq .001$ ), and their self-efficacy beliefs ( $\beta = .20$ ;  $p \leq .001$ ) with a 25% variance explanation. Supporting hypothesis  $H_3$ , primary school students' self-efficacy beliefs mediate the effects of the perceived teacher behavior on their attitudes towards peers with learning disabilities ( $\beta_{indirect} = .06$ ;  $p \leq .01$ ). Not supporting hypothesis  $H_3$ , the effect of the perceived teacher behavior on their attitudes towards peers with social or emotional disabilities is not significantly mediated by their self-efficacy beliefs regarding their interpersonal skills ( $\beta_{indirect} = .03$ ;  $p = .06$ ). With a 12% variance explanation, children's self-efficacy beliefs concerning their interpersonal skills can be explained by their perceived teacher behavior towards peers with SEN ( $\beta = .32$ ;  $p \leq .001$ ), but not by their contact experiences ( $\beta = .07$ ;  $p = .10$ ). Not supporting hypothesis



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

Figure 2. Results of the Structural Equation Model

Table 2: Standardized Factor Loadings from the Confirmatory Factor Analysis

|   | Variable | $\beta$ | S.E |
|---|----------|---------|-----|
| Teacher behavior  | 1        | .59***  | .04 |
|   | 2        | .68***  | .04 |
|   | 3        | .75***  | .03 |
|   | 4        | .73***  | .03 |
|   | 5        | .68***  | .03 |
|   | 6        | .71***  | .03 |
|   | 7        | .68***  | .04 |
|   | 8        | .65***  | .04 |
| Contact experiences   | 1        | .77***  | .02 |
|   | 2        | .76***  | .03 |
|   | 3        | .84***  | .02 |
|   | 4        | .82***  | .03 |
|   | 5        | .74***  | .03 |
|   | 6        | .84***  | .03 |
|   | 7        | .67***  | .04 |
| Self-efficacy beliefs   | 1        | .47***  | .03 |
|   | 2        | .47***  | .05 |
|   | 3        | .62***  | .03 |
|   | 4        | .67***  | .04 |
|   | 5        | .67***  | .03 |
|   | 6        | .79***  | .02 |
|   | 7        | .78***  | .02 |
| Attitudes towards peers with social or emotional disabilities | 1        | .69***  | .03 |
|   | 2        | .78***  | .02 |
|   | 3        | .68***  | .02 |
|   | 4        | .82***  | .02 |
|   | 5        | .80***  | .02 |
|   | 6        | .78***  | .02 |
|   | 7        | .83***  | .01 |
|   | 8        | .82***  | .02 |
|   | 9        | .79***  | .02 |
|   | 10       | .82***  | .02 |
| Attitudes towards peers with learning disabilities            | 1        | .60***  | .03 |
|   | 2        | .69***  | .02 |
|   | 3        | .58***  | .03 |
|   | 4        | .70***  | .03 |
|   | 5        | .73***  | .03 |
|   | 6        | .72***  | .02 |
|   | 7        | .75***  | .02 |
|   | 8        | .70***  | .02 |
|   | 9        | .68***  | .03 |
|   | 10       | .72***  | .02 |

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

Table 3: Standardized Beta Values of all Relationships in the SEM

| Latent variable   | $\beta$ | $p$         | S.E | $R^2$  |
|---|---------|-------------|-----|--------|
| Attitudes towards peers with social or emotional disabilities |         |             |     | .17*** |
| Teacher behavior  | .24     | $\leq .001$ | .04 |        |
| Contact experiences   | .22     | $\leq .001$ | .03 |        |
| Self-efficacy   | .09     | $\leq .05$  | .04 |        |
| Attitudes towards peers with learning disabilities            |         |             |     | .25*** |
| Teacher behavior  | .32     | $\leq .001$ | .06 |        |
| Contact experiences   | .14     | $\leq .001$ | .03 |        |
| Self-efficacy   | .20     | $\leq .001$ | .05 |        |
| Self-efficacy   |         |             |     | .12**  |
| Teacher behavior  | .32     | $\leq .001$ | .06 |        |
| Contact experiences   | .07     | .10         | .05 |        |

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

H<sub>4</sub>, primary school students' self-efficacy beliefs concerning their interpersonal skills do not mediate the effect of their contact experiences on their attitudes towards peers with learning disabilities or towards peers with social or emotional disabilities.

## Discussion

The aim of our study was to verify the importance of primary school students' perceived teacher behavior towards peers with SEN, their contact experiences, and their self-efficacy beliefs for their attitudes towards peers with SEN. Supporting hypothesis H<sub>1</sub>, the results of our study reveal that primary school students' attitudes towards peers with learning disabilities are significantly more positive than towards peers with social or emotional disabilities. This finding is supported by the results of several other studies (e.g., de Boer, 2012a; Schwab, 2015b). Although the findings are consistent, it is still unclear why primary school students' attitudes towards peers with social or emotional disabilities are less positive than towards peers with other disabilities. Our findings only provide information concerning this research gap to a limited extent. Supporting hypothesis H<sub>2</sub>, the results of the presented structural equation model show that primary school students' attitudes towards peers with social or emotional disabilities are predicted by their contact experiences, their self-efficacy beliefs, and their perceived teacher behavior towards disabled children. However, primary school students' attitudes towards peers with learning disabilities can also be explained by the same latent variables. Thus, our results do not provide differences in primary school students' attitudes towards peers with social or emotional disabilities and towards peers with learning disabilities. Future research should focus on the reasons for the less positive acceptance of children with social or emotional disabilities.

Nevertheless, our findings underline the importance of primary school students' per-

ceived teacher behavior towards disabled children for their attitudes as well as for their self-efficacy beliefs. Supporting hypothesis H<sub>3</sub>, our results point out that self-efficacy beliefs mediated the effect of primary school students' perceived teacher behavior on their attitudes towards peers with learning disabilities. This finding suggests that primary school students likely orient their attitudes and their behavior towards peers with SEN to those of significant others. Obviously, this finding underlines the importance of primary school teachers' behavior in the classroom as role models towards children with SEN in terms of developing primary school students' positive attitudes towards peers with SEN. These findings support Feinman's (1992) theory of social referencing and are widely consistent with the current state of research (e.g., de Boer et al., 2012b; David & Kuyini, 2012; McAuliffe et al., 2009).

Not supporting hypothesis H<sub>4</sub>, the effect of contact experiences on primary school students' attitudes towards peers with SEN are not mediated by their self-efficacy beliefs. This finding is traced back to the fact that children's self-efficacy beliefs are not predicted by their contact experiences. Thus, this result emphasizes that contact experiences are not sufficient for children's self-efficacy beliefs. This finding does not support Allport's (1954) intergroup contact theory. Obviously, primary school students' contact experiences do not simply increase their self-efficacy beliefs. Therefore, the teacher behavior seems to be an important source for children's self-efficacy beliefs concerning their interactions with disabled peers. Until now, it is still not clear which forms of the teacher role model behavior support the social participation of primary school students with and without SEN in the inclusive classroom. Our results do not provide concrete implications for teaching practice in primary schools. Nevertheless, our findings underline the importance of teacher's behavior towards children with SEN for primary school students' attitudes towards their peers with SEN as well as for their self-efficacy beliefs con-



cerning their interpersonal skills. Cause-effect relationships must be observed in long-term studies in future investigations. Further research should also focus especially on possibilities to improve primary school students' attitudes towards peers with social or emotional disabilities. Our results indicate the importance of primary school students' perceived teacher behavior in the classroom for their attitudes towards peers with SEN. Based on this, teacher behavior should be taken into account in terms of improving the social participation of all children with and without SEN. Certainly, there are initial approaches in this research area (e.g., Huber, Gebhardt & Schwab, 2015), which are undoubtedly highly relevant for inclusive education.

## Limitations

There are a few limitations concerning our investigation on determinants for primary school students' attitudes towards peers with SEN. The limitations concern the methodical approach. Primary school students' attitudes towards peers with SEN were examined based on CATCH (Rosenbaum et al., 1986) using the short version (Bossaert & Petry, 2013). The children were asked to rate their attitudes towards hypothetical peers with social or emotional disabilities and those with learning disabilities presented in vignettes. The questionnaire scales that we used only consist of items measuring the affective and the behavioral component of attitudes. The cognitive component of primary school students' attitudes towards peers with SEN was not taken into account. In addition, the two components of primary school students' attitudes towards peers with SEN (affective and behavioral) could not be separated by confirmatory factor analyses, as previously shown by Bossaert and Petry (2013) or Schwab (2015b). Future investigations should consider the three components of children's attitudes towards peers with SEN (Schwab, 2015b). Additionally, the three

components of children's attitudes towards peers should be operationalized in a more differentiated way so that there can be a chance to separate the three components by confirmatory factor analyses.

Another limitation is related to the acquisition of children's contact experiences with peers with SEN. In our study, primary school students provided information on the quantity of their contacts with peers with SEN. Some other studies reveal that the quantity of contact is unrelated to individuals' attitudes toward disabled people. However, the quality of contact is more associated with individuals' attitudes towards disabled people (e.g., Keith et al., 2015). In further studies, the measurement of the quality of contact should be taken into account. The quality of contact seems to be a better predictor for students' attitudes towards peers with SEN than the quantity of contact.

Furthermore, none of the primary school students participating in our study were taught in integrative or inclusive classrooms. This methodical approach was chosen based on ethical and moral principles. If our study was carried out in inclusive classrooms, the vignettes measuring primary school students' attitudes could evoke similarities to their classmates with SEN. In further research, studies on primary school students' attitudes towards peers with SEN should be implemented in inclusive classrooms. This will require alternative methodical approaches (Avramidis, 2010). Certainly, children with SEN should provide information on their attitudes towards their classmates in those studies.

Finally, further restrictions concerning the results of our study must be taken into account. Essentially, these restrictions are related to the questionnaire scales that we used to examine our hypotheses. We developed the individual questionnaire scales based on available instruments or we designed new scales. These questionnaire scales could not be empirically tested in preliminary studies. Thus, there are restrictions concerning the validity of the instruments used in our inves-

tigation. In further studies, the validity of the questionnaire scales should be verified.

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Erstmalig eingereicht: 25.12.2016

Überarbeitung eingereicht: 04.06.2017

Angenommen: 15.11.2017