Teachers’ student-specific self-efficacy in relation to teacher and student variables

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ABSTRACT
This study aims to show the importance of explicitly identifying student-specific teachers’ self-efficacy. Data from 43 regular teachers who rated their self-efficacy towards 611 fourth-grade students from inclusive classes in Austria were analyzed. In addition, 15 regular teachers and 15 special needs teachers rated their student-specific self-efficacy levels of 136 students. Teachers’ sense of self-efficacy towards individual students was assessed using a short, adapted version of Tschannen-Moran and Woolfolk Hoy’s Teachers’ Sense of Efficacy Scale. Results of multilevel-regression analysis showed that the higher the teachers’ general self-efficacy the higher was their student-specific self-efficacy. In addition, teachers’ student-specific self-efficacy was lower for students whose special needs regarded learning or behavioural and emotional disorders. The outcomes of the study imply that measuring teachers’ self-efficacy specifically for individual students compared to a teachers’ general self-efficacy towards inclusion is an important addition to previous research.

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Literature overview
Teaching is a challenging profession; teaching in inclusive classes can be even more challenging. Therefore, an important topic in the context of inclusive education is determining the most relevant factors for implementing inclusive education successfully. In this article, the term inclusive education refers to the inclusion of learners with special educational needs (SEN) within mainstream classrooms to create equal opportunities for learning and participation of all students.

Research pointed out that teachers’ attitudes towards inclusion are crucial for the implementation of inclusive education (De Boer, Pijl, & Minnaert, 2011). Summarizing previous literature, it becomes clear that teachers are rather positive towards the inclusion of students with SEN. However, some studies have found teachers to hold neutral or negative attitudes (Avramidis & Norwich, 2002; De Boer et al., 2011; Schwab, 2018).
Further, others have indicated that teachers are positive until asked about their own practice (Leibziger, Tretter, & Gebhardt, 2012). Many concerns exist regarding the practical implementation (Forlin, Earle, Loreman, & Sharma, 2011; Hintz, Paal, Urton, Krull, Hennemann, & Wilbert, 2015). What we also know from research (Spilt & Koomen, 2009) is that teachers find teaching students with behaviour disorders very challenging. Moreover, the relation between teachers’ attitudes towards inclusive schooling is connected with teachers’ self-efficacy beliefs (Savolainen, Engelbrecht, Nel, & Malinen, 2012; Sharma, Loreman, & Forlin, 2012). Therefore, teachers’ self-efficacy is also seen as an important factor influencing the quality of inclusive education. Zee and Koomen (2016) recently pointed out the effects of teachers’ self-efficacy on classroom processes, student academic adjustment, and teacher wellbeing in a synthesis of 40 years of research. Especially, the impact of self-efficacy on students’ achievement (among typically-developing students across grade levels) was clearly shown in many studies (Boonen, van Damme, & Onghena, 2014; Kunter et al., 2015; Moolenaar, Sleezers, & Daly, 2012).

Following a social–psychological framework to define self-efficacy, one widely used theory is Bandura’s Social Cognitive Theory (Bandura, 1977). Synthesizing the definitions provided by Bandura (1986, p. 391) and Tschannen-Moran, Woolfolk Hoy, and Hoy (1998, p. 233) teachers’ self-efficacy towards inclusive schooling can be understood as the subjective belief of teachers own teaching capabilities in inclusive settings (Tschannen-Moran & Woolfolk Hoy, 2001). While on the one hand, the construct is theoretically specified as task-specific, on the other hand, it is operationalized globally (Wyatt, 2014). Thus, it can be critically summarized that nearly all studies used a general definition of teachers’ self-efficacy, which sees it as a rather overarching construct (Zee & Koomen, 2016). However, some studies already pointed-out that teachers’ self-efficacy beliefs are influenced by the context as well as the specific domain (Fackler & Malmberg, 2016; Siwatu, 2011). Fackler and Malmberg (2016) investigated the variances on different levels of teachers’ self-efficacy in 14 OECD countries: 88.7% variance was on the individual level (teacher level), 2.9% on school level and 8.5% variance was on country level. Moreover, the researchers’ found that teaching in a higher performing class is associated with higher teachers’ self-efficacy. A further result from the same research was that student achievement was strongly linked with teachers’ self-efficacy. According to the variance on the teachers’ individual level, the previous literature demonstrates that working experience and knowledge can improve self-efficacy (Schwab, Hellmich, & Görel, 2017; Sharma, Shaukat, & Furlonger, 2015).

Importantly, however, less research has investigated the self-efficacy of special education teachers, particularly those who teach children with learning disabilities or emotional and behavioural difficulties. Based on an overview of the literature, experience with students with SEN (Malinen et al., 2013) and also previous special education training (Levi, Einav, Raskind, Ziv, & Margalit, 2013) is associated with higher self-efficacy. In inclusive education contexts, Gebhardt, Schwab, Nusser, and Hessels (2015) found that the self-efficacy of special needs teachers was higher than those of regular teachers. On the same lines, Justice, Mashburn, Hamre, and Pianta (2008) reported high self-efficacy for preschool teachers in classrooms serving at-risk pupils (4-year-old children exhibiting social and/or economic risks). Furthermore, in this study, a relation between the quality of literacy instruction and teachers’ self-efficacy was shown. Additionally, a study from Guo, Dynia, Yeager Pelatti, and Justice (2014) reported for early childhood
special education teachers that the association between teachers’ self-efficacy and students’ achievement gains were influenced by the emotional as well as instructional support.

Moreover, Guo, Justice, Sawyer, and Tompkins (2011) showed a high self-efficacy for preschool teachers who taught children at risk for academic difficulty. In the context of inclusive education, the question posed is whether teachers’ self-efficacy towards students with SEN is lower than their self-efficacy towards students without SEN. According to the literature review, there is a gap in previous studies. The aim of the current study intends to provide data to help fill this gap.

Interaction between members of dyads (e.g. one teacher – one student) has been studied extensively in relation to relationships (e.g. teacher–student relationships, peer relationships). Spilt, Koomen and Thijs (2011) examined the importance of teacher-student relationships for teachers. In their review, the research group pointed out that teacher–student relationships are associated with variables such as wellbeing. In addition, one can refer to Schulte-Pelkum, Schweer, and Pollak (2014) who pointed out that teachers rated their dyadic trust relations with their students higher for students with more positive social behaviour. Following the study conducted by Zee, Koomen, Jellesma, Geerlings and de Jong (2016), it can be concluded that self-efficacy beliefs in relation to different students (dyadic self-efficacy) seems a meaningful addition to the construct of teacher self-efficacy, especially to increase the external validity and the practical relevance of self-efficacy to the field of education. The practical utility of studies on perceived levels of teacher efficacy based on hypothetical situations and imaginary scenarios involving students with disability seems to be rather low. Indeed, the empirical comparison of studies and the causal interpretation of predictors is easier when using concrete situations in which there is already an existing teacher-student relationship. This is because teachers’ reality is often far away from what can be imagined. Zee, Koomen, et al. (2016) demonstrated that the variability on the within-teacher level was larger than on the between-teacher-level. This indicates a high relevance for student-specific self-efficacy. Their results further specified the highest variance was in student-specific teachers’ self-efficacy for behaviour management. Furthermore, it showed that student-specific self-efficacy beliefs were not predicted by the years of teaching experience. The authors argued that ‘the presence of cluster bias in teachers’ self-efficacy underscores the complexity of purely estimating these elusive capability beliefs. Both teachers’ and students’ idiosyncratic characteristics and behaviours are likely to shape a unique classroom environment that ultimately affects how teachers judge and interpret their own sense of efficacy’ (Zee, Koomen, et al. 2016, p. 51). Another study from Zee, de Jong, and Koomen (2016) confirmed the high variance within-teacher-level in dyadic self-efficacy. The results of this study clearly demonstrate a link between students’ social behaviour (prosocial behaviour, internalizing and externalizing behaviour problems) and teachers’ self-efficacy.

This article intends to provide deeper insights into teachers’ self-efficacy since this construct is seen as a crucial factor for the success of inclusive education. Thus, it is important to investigate teachers’ self-efficacy. As mentioned, lots of studies already focused on this topic, whereas less research was done on the student-specific teachers’ self-efficacy. This study tries to fill this gap because it important to assess
teachers’ self-efficacy more closely to the classroom context and to gain more knowledge about specific aspects which are seen to be challenging in inclusive education. The more information is available on the variables which are possible barriers to inclusive education the better the future teacher can be trained to have more competencies to deal better with these barriers.

**Aims of the present study**

The introduction points out that previous studies have scarcely taken into account student-specific self-efficacy (see Zee, Koomen, et al., 2016). Therefore, the student-specific variance of teachers’ self-efficacy is the focal point of this article. Notably, literature available to date does not provide evidence of studies, which have examined the relations between student-specific teachers’ self-efficacy and students’ special needs. Consequently, student-specific self-efficacy towards students with and without SEN have been compared. Additionally, the inter-rater overlap between regular teachers and special needs teachers have been analyzed and are presented in this article.

The first part of the analysis focuses on the ratings of the regular and special needs teachers to answer the research question: ‘How high is the overlap in the student-specific self-efficacy between the two groups of teachers?’ Second, the mean values of regular teachers’ and special needs teachers’ self-efficacy are compared to provide data regarding the difference, if any, between regular teachers’ and special needs teachers’ self-efficacy. It was hypothesized that special needs teachers’ self-efficacy towards students with SEN and for students with behavioural disorders is higher compared to those of regular teachers. This assumption is in the vein with previous results, which has shown that experience and knowledge contributed to higher self-efficacy. Third, associations between regular teachers’ student-specific self-efficacy and other variables on teacher level (teachers’ general self-efficacy, teachers’ attitudes towards inclusive education) and on students’ level (gender, having SEN, prosocial behaviour, behaviour problems) are presented. Based on the outcomes of previous studies, it was expected that higher levels of general self-efficacy, more positive attitudes towards inclusive education and a more positive social behaviour of students is positively linked with teachers’ student-specific self-efficacy. Moreover, it was expected that teachers would have a lower self-efficacy towards students with SEN and students with a behaviour problem.

**Method**

**Participants**

In the total sample, 721 fourth-grade students (approximately age =9–11 years) from 48 Styrian primary school classes participated at T1. However, because not every regular teacher was willing to fill-out a questionnaire about each student in his/her class, the number of classes that participated dropped from 48 to 43. Some individual dropout also occurred because the parents did not return the consent form. In total, 43 regular teachers (41 females, 2 males) rated a total number of 611 students (311 boys, 300 girls; 62 students with SEN: 42 boys, 20 girls). The 43 teachers were between 25
and 57 years old ($M = 40.63$, $SD = 10.41$) and had already worked between 2 and 36 years as a teacher ($M = 15.06$, $SD = 11.16$).

However, in some cases, the special needs teacher only gave information about students with SEN; in some cases, the regular teacher only filled out the questionnaire for students without SEN. For 104 students without SEN (45 boys, 59 girls) and 32 students with SEN (22 boys, 10 girls) ratings from both teachers were available ($N = 15$ regular teachers and 15 special needs teachers). The majority of the students with SEN had a learning disability (61.3%). Moreover, some had social and or emotional disorders (12.9%). 9.7% had intellectual disabilities and 16.1% had hearing impairments. Those 15 regular teachers were all females between 20 and 56 years old ($M = 43.53$, $SD = 10.86$) and had between 2 and 36 years of teaching experience ($M = 18.83$, $SD = 12.02$). Also, the 15 special needs teacher were all female. Their ages ranged between 25 and 60 years ($M = 44$, $SD = 11.21$), and they had between 5 and 34 years of teaching experiences ($M = 17.53$, $SD = 9.45$).

**Measures**

**Student-specific teachers’ self-efficacy**

Teachers’ sense of self-efficacy towards individual students was assessed with a German four-item short form of an adapted version of the Tschannen-Moran and Woolfolk Hoy (2001) Teachers’ Sense of Efficacy Scale (Zee, Koomen, et al., 2016). In this study, the original items were all transformed into an active formulation: for example, the original item from Zee, Koomen, et al. (2016) was ‘How well can you provide appropriate challenges for this student?’ In the present study, this was reworded into: ‘I can provide appropriate challenges for this student’. For each underlying sub-scale, one item was used (instructional strategies: ‘I can provide appropriate challenges for this student’, behavior management: ‘I can control disruptive behavior in this student’, student engagement: ‘I can motivate this student for his/her schoolwork’, emotional support: ‘I can adjust learning tasks to this student’s needs and interests’), and the item scores were used for an overall score. The answer format was a five-point Likert-scale (1 = ‘Not at all true’, 5 = ‘Completely true’). The preliminary analysis shows a high reliability for this short scale in the present sample (Cronbach’s $\alpha = .83$ for regular teachers and .85 for special needs teachers).

**General teacher self-efficacy**

The Teacher Inclusive Education Self-Efficacy Scale (TIESES; see Hellmich & Görel, 2014 for the original scale in German; see Schwab et al., 2017 for the English translation) was used to assess teachers’ general self-efficacy. This instrument consists of eight items (e.g. ‘I am sure that, even with larger performance differences, I will be able to provide adequate learning opportunities for each individual child in my inclusive class.’ or ‘If I encounter barriers in inclusive education, I find means and ways to affirm myself.’) and was adapted from several German instruments (Kopp, 2009; Schwarzer & Schmitz, 1999) that measure self-efficacy for inclusive education. For this scale, a good internal consistency ($\alpha = .86$) was shown by Hellmich and Görel (2014). These items are
answered on a six-point Likert scale (1 = ‘totally disagree’ to 7 = ‘totally agree’). In the current sample (of regular teachers) Cronbach’s α was = .88.

**Teachers’ attitudes towards inclusive education**

Teachers’ attitudes towards inclusive education were assessed with the German ‘Attitudes towards inclusion questionnaire’ (Einstellungen zur Integration; Kunz, Luder, & Moretti, 2010) based on the Teacher Attitudes Toward Inclusion scale (see Bryer, Grimbeek, Beamish, & Stanley, 2004; Stanley, Grimbeek, Bryer, & Beamisch, 2003). The 11 items are answered on a six-point Likert scale (1 = ‘totally disagree’ to 7 = ‘totally agree’) and showed a good internal consistency; α = .85 in the study of Kunz et al. (2010) (α = .80 in the current sample of regular teachers).

**Students’ prosocial behaviour, behaviour problems and behavioural disorders**

One of the most often used screening instruments for identifying problem behaviour and students’ prosocial behaviour is the Strengths and Difficulties Questionnaire (SDQ; Goodman & Goodman, 2011). We used all subscales of the teachers’ version (‘prosocial behavior’, e.g. ‘considerate of other people’s feelings’; emotional symptoms, e.g. ‘Often unhappy, depressed or tearful’; conduct problems, e.g. ‘generally well behaved, usually does what adults request’; hyperactivity/inattention, e.g. ‘restless, overactive, cannot stay still for long’; peer relationship problems, e.g. ‘Picked on or bullied by other children’). Each subscale consists of five items which have to be answered on a three-point Likert scale (1= ‘Not True’, 2= ‘Somewhat True’ and 3= ‘Certainly True’). The instrument shows satisfactory reliability and a replicable factor structure (Klasen et al., 2000). In the present sample, the internal consistency was acceptable (regular teachers’ ratings: prosocial behavior: α = .85; emotional symptoms: α = .78; conduct problems: α = .71; hyperactivity/inattention: α = .85; peer relationship: α = .75).

Additionally, teachers had to rate, on a single item, whether a student has behavioural disorders. A four-point-Likert scale was utilized (‘not at all’ – ‘rather not’ – ‘rather yes’ – ‘certainly’). If both teachers categorized a student with ‘not at all’ or ‘rather not’ the student was coded as having no behavioural disorders (n = 105 students). If both teachers rated the student with ‘rather yes’ or ‘certainly’, the students were coded as having behavioural disorders (n = 24 students). The ratings for seven of the students were too divergent; hence, these students were not classified and have missing values in this variable.

**Special educational needs (SEN)**

In Austria, students are diagnosed as having SEN following an official process by the local educational authority. Generally, the majority of students with SEN have learning disabilities (Schwab, Kopp-Sixt, & Bernat, 2015). Thus, in the current study, no subgroups of different kinds of SEN were distinguished because of the low number of students with SEN.
**Procedure**

Data were collected as part of the Austrian study ‘Attitudes Towards Inclusive Schooling – Students, Teachers and Parents (ATIS-STEP)’. In total, 43 classes from Styria, a federal state of Austria, contributed. Only classes where at least one student with a SEN diagnosis were invited to participate. In some of these classes, a second teacher trained for teaching students with SEN and a regular teacher was allocated. In Austrian’s inclusive classes where at least three students with SEN are educated together with students without SEN, the resource of the second teacher is given nearly for the whole amount of teaching hours (Schwab, 2014). The study was ethically approved by the Styrian Regional School Authority. Further, parents had to give informed consent. ATIS-STEP is a longitudinal study with two quantitative measurement times: the beginning of the school year and the end of the school year. However, the present study uses only data from the first measurement point (September–October 2016). Each regular teacher was asked to complete a questionnaire about himself/herself, in addition to a short questionnaire for each of his/her students. If a special needs teacher was allocated to the same class, also he or she has been asked to fill out these questionnaires. While teachers needed approximately 10 minutes to complete the paper-pencil survey about themselves, it took another 10 minutes per student to fill out the student-specific questionnaires.

**Data analysis**

To answer the first two research questions, only data where ratings from both teachers were available were utilized. This means that the number of classes was too small to calculate multilevel analysis. For the first research question, Pearson’s correlations were calculated. Differences between correlation coefficients were investigated using the Fisher r-to-z transformation according to Eid, Gollwitzer, and Schmitt (2011, p. 547). The second research question was answered using a univariate analysis of variance for repeated measurements (regular and special needs teachers’ ratings). The student-specific teachers’ self-efficacy was used as dependent variable. Having SEN (students without SEN vs. students with SEN) as well as behaviour problems (the information about the single item about behaviour disorders of both teachers) were entered as independent variables. Students’ gender was also added as an independent variable (as a control variable).

For the third research question, multilevel regression analysis was calculated for the ratings of regular teachers’ student-specific self-efficacy. The amount of the variance on the individual level (student-specific level) and on the teacher level was determined in a model without any predictors. Next, SEN, having behaviour disorders (according to the regular teachers rating), students’ behaviour (prosocial behaviour, emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship) and gender (male vs. female) were added as predictors on the student-specific level. On the teacher level, teachers’ general self-efficacy and their attitudes towards inclusive education were entered as predictors. All metric variables (student’ specific self-efficacy, general self-efficacy, attitudes, having behavioural disorders, prosocial behaviour,
emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship) were z-standardized.

### Results

To investigate, the relation between student-specific self-efficacy of regular teachers and special needs teachers, Pearson’s correlations were calculated. Next to an overall correlation, separate correlations for students with and without SEN and for students with and without behaviour disorders as well as for male and female students were calculated (see Table 1). In the whole sample, the correlation between student-specific regular teachers’ and special needs teachers’ self-efficacy was relatively high. In addition, the correlation for boys was significantly lower than the correlation for girls ($z = -1.77, p < .05$). Further, for students without SEN, the correlation was higher than for students with SEN. However, due to the small sample size of students with SEN, this difference was not significant ($z = 1.39, p = .08$). Similar results were found for students with and without behavioural disorders ($z = 0.83, p = .20$).

Next, univariate analyses of variance for repeated measurements (regular and special needs teachers’ ratings) were calculated to compare the student-specific self-efficacy for both teachers (see Table 2). At first, a significant main effect for the rater was found which indicated that student-specific self-efficacy of special needs teachers is higher than those of regular teachers ($F[1, 121] = 4.72, p < .05, \eta^2 = .04$). However, no significant interaction effects between the rater and gender ($F[1, 121] = 0.68, p = .41$), SEN ($F[1, 121] = 0.32, p = .58$) and behavioral disorders ($F[1, 121] = 2.58, p = .11$) were found.

Further, multi-level regression analysis (see Table 3) was conducted. The model without predictor showed that 24.4% of the variance was explained on teacher-level (student-specific-variance = .759, variance on teacher-level = .242, deviance =1637.09, $Wald-Z = 3.74, p < .01$). In the model with predictors (student-specific-variance = .392, variance on teacher-level = .140, deviance =1040.22, $Wald-Z = 3.5, p < .01$), SEN ($\beta = -.26, p < .05, t [486.79] = -2.38, S.E. = .11$), as well as students behaviour (pro-social behavior: $\beta = .12, p < .01, t [486.79] = 2.91, S.E. = .04$; emotional symptoms: $\beta = -.09, p < .01, t [486.79] = -2.68, S.E. = .03$; conduct problems: $\beta = -.15, p < .01, t [486.79] = -3.32, S.E. = .035$; hyperactivity/inattention: $\beta = -.32, p < .01, t [486.79] = -7.55, S.E. = .04$) showed a significant influence on the students’ level and teachers’ general self-efficacy ($\beta = .18, p < .01, t [44.69] = 2.68, S.E. = .07$) showed a significant positive influence on the teachers’ level.

### Table 1. Inter-rater overlap between regular teachers’ and special needs teachers’ student-specific self-efficacy.

|                          | Whole sample ($n = 136$) | Boys ($n = 67$) | Girls ($n = 69$) | Students without SEN ($n = 104$) | Students with SEN ($n = 32$) | Students without behavioural disorders ($n = 105$) | Students with behavioural disorders ($n = 24$) |
|--------------------------|--------------------------|----------------|----------------|-------------------------------|-----------------------------|-----------------------------------------------|-----------------------------------------------|
|                          | .64**                    | .55**          | .73**          | .68**                         | .49**                       | .57**                                         | .42*                                          |

$^* p < .05$.  
$^{**} p < .01$.  

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The main goal of this study was to provide insights into regular teachers’ as well as special needs teachers’ self-efficacy. Over the last decades, teachers’ self-efficacy has been studied intensively as a global construct. By contrast, Zee, Koomen, et al. (2016) proposed that it would be meaningful to study teachers’ self-efficacy specifically for each student. This approach would also increase the ecological validity of studies on teachers’ self-efficacy. This study had three specific purposes: (a) to compare the student-specific self-efficacy of regular and special needs teachers, (b) to analyze if higher expertise of special needs teachers compared to regular teachers is linked with the self-efficacy towards students with learning disabilities and behavioral and emotional problems and (c) to identify variables on student and teacher level which are associated with teachers’ self-efficacy.

Regarding the first research question, the results have shown that there is a significant inter-rater overlap between regular and special needs teachers’ student-specific self-efficacy. The correlation coefficients indicated a variance overlap of about 41%. The significant overlap between the student-specific self-efficacy of the two groups of teachers highlights that teachers feel relatively similar regarding their self-efficacy towards specific students. This finding implies that one of the reasons why teachers struggle with the students is based on specific variables related to the students.

**Table 2.** Means, standard deviations of regular and special needs teachers’ ratings of student-specific self-efficacy.

| Teacher                  | Whole sample (n = 136) | Boys (n = 67) | Girls (n = 69) | Students without SEN (n = 104) | Students with SEN (n = 32) | Students without behavioural disorders (n = 105) | Students with behavioural disorders (n = 24) |
|--------------------------|------------------------|---------------|----------------|-------------------------------|---------------------------|-----------------------------------------------|---------------------------------------------|
| Regular teacher          | 4.49 (0.63)            | 4.35 (0.69)   | 4.62 (0.52)    | 4.06 (0.77)                   | 4.69 (0.43)               | 3.75 (0.68)                                   |
| Special needs teacher    | 4.55 (0.51)            | 4.45 (0.57)   | 4.61 (0.51)    | 4.34 (0.47)                   | 4.68 (0.40)               | 4.05 (0.64)                                   |

**Table 3.** Estimates of the multi-level regression analyses to predict student-specific self-efficacy of regular teachers (model with predictors).

|                        | B          | S.E.   |
|------------------------|------------|--------|
| Students’ gender       | -0.03      | 0.06   |
| Students’ SEN          | -0.26*     | 0.11   |
| Students’ behavioral disorders | 0.02     | 0.05   |
| Students’ prosocial behavior | 0.12**   | 0.04   |
| Students’ emotional symptoms | -0.09**  | 0.03   |
| Students’ conduct problems | -0.15**  | 0.05   |
| Students’ hyperactivity/inattention | -0.32**  | 0.04   |
| Students’ peer relationship | -0.06    | 0.04   |
| Teachers’ general self-efficacy | 0.18*    | 0.07   |
| Teachers’ attitudes towards inclusion | 0.00    | 0.07   |
| Intra-group-variance   | 0.39**     | 0.03   |
| Inter-group-variance   | 0.14**     | 0.04   |
| Deviance               | 1040.22    |        |

$p < .05$.

$p < .01$.

**Discussion**

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specifically, there was a tendency (not statistically) that the overlap of student-specific self-efficacy of both teachers was higher for students without SEN compared to students with SEN. The overlap of both teachers’ ratings was only about 24%. It could be the case that the same characteristics of students with SEN (e.g. showing specific behaviour problems) have a different effect on regular and special needs teachers’ self-efficacy.

On the same lines, it is worth mentioning the results of the second research question. The level of student-specific self-efficacy of special needs teachers was higher than those of regular teachers. However, contrarily to the theoretical assumptions claiming that there is a link between training and self-efficacy (Sharma et al., 2015), the student-specific self-efficacy levels of special needs teachers’ was higher for all students. No significant interaction effect between teacher ratings and SEN or behavioural problems was found. The lack of this outcome might be biased by the small sample size of students with SEN. Nevertheless, the fact that the self-efficacy of those two teachers differ in the total sample might suggest that in inclusive classes with a relatively high range of heterogeneity of students’ learning capacities and behavior, the teachers who are more trained for individual needs believe that they can provide a better setting for students with and without specific needs. Thus, it can be emphasized that the real meaning of inclusive education is not categorizing between students with and without SEN, but rather seeing each student as an individual and accepting heterogeneity as an advantage. For instance, the German Commission for UNESCO (2017) defined inclusive education broadly and stresses on the fact that inclusive education has to provide high-quality education for all individuals irrespective of the group (e.g. with focus on gender, race, religion, having SEN) to which they belong.

Focusing on the results of the third research question, some important predictors of teachers’ student-specific self-efficacy were found. The first major result was that there was a significant variance in both students and teachers’ levels. For future interventions, this implies that having a high or low self-efficacy towards students is, on the one hand, based on students’ characteristics (e.g. having SEN) and, on the other hand, also on teachers’ characteristics. Taking into account that the variance on teacher level was about 24% while the variance on student level was about 76% it can be concluded that it is meaningful to analyse teachers’ self-efficacy not only globally but also with regard to specific students. Thus, in accordance with the results of Zee, Koomen, et al. (2016), the present study confirms the high relevance of measuring self-efficacy of teachers with regard to specific students.

As expected, the general self-efficacy of teachers can predict their student-specific self-efficacy indicating that if teachers generally have a high self-efficacy towards inclusive education they have also a high self-efficacy towards individual students. Notably, teachers’ attitudes towards inclusive education did not explain any variance. These findings of a lack of positive impact of teachers’ attitudes on teachers’ self-efficacy are not consistent with some other studies (Savolainen et al., 2012; Schwab et al., 2017; Sharma et al., 2012). An explanation of this result might be that, within the present study, self-efficacy was measured with a high link on real students, whereas the instrument used to measure teachers’ attitudes focused on normative attitudes.
On the student’s level, significant predictors were the type of special needs (regarding learning or behavioural and emotional disorders). Students’ prosocial behaviour was positively linked to student-specific self-efficacy while having SEN, as well as behaviour problems, were negatively associated with specific self-efficacy. More particularly, hyperactivity and attention deficits predicted low student-specific self-efficacy of regular teachers. These results are in line with previous research indicating that externalizing behaviour problems are one of the most challenging things teachers in inclusive education have to deal with (Schwab, 2018) and was also identified as the highest need for training (Schwab, Holzinger, Krammer, Gebhardt, & Hessels, 2015). This study is closely connected with the existing literature regarding teachers’ attitudes towards inclusive education in the sense that the attitudes towards students with behaviour problems, is seen more negative compared to other students (Avramidis & Norwich, 2002; De Boer et al., 2011). Thus, it can be suggested that pre- and in-service teacher training should envisage the acquisition of competencies to deal with challenging students’ behaviour needs.

Finally, several limitations have to be considered when interpreting the results of this study. Generally, working with self-report questionnaires brings about limitations in the data obtained. For instance, there is empirical evidence of bias in retrospective self-reports, such as intensity bias or a rosy view (Venetz & Zurbriggen, 2016). Moreover, as with most of the similar studies conducted, teachers participated on a voluntary basis. This may have caused a certain bias in the sense that they were already motivated to participate in the study. Moreover, in-depth information about teachers’ self-efficacy and the explanations why they feel more or less self-efficient for a specific student can only be established through more in-depth interviews during which the teacher can give thorough understanding in his/her way of working and feelings of self-efficacy.

**Conclusion**

In general, more and more research studies try to identify relevant factors for successful inclusion. There seems to be a broad consensus that teachers’ self-efficacy is crucial in implementing inclusive education successfully and to guarantee that all children (regardless of their abilities) are getting their best opportunities in their school. Therefore, it may be useful to understand why teachers manifest high or low levels of self-efficacy. The present study adds knowledge on factors on teachers as well as on student’s characteristics. Previous literature has already established that highly self-efficacious teachers behave differently than those with lower levels of efficacy. However, teachers’ actual self-efficacy towards their ‘real’ students were not measured (except in the work of Zee, de Jong, et al., 2016; Zee & Koomen, 2016; Zee, Koomen, et al., 2016). Therefore, the external validity and the practical relevance to the field of education of previous literature is rather low. Keeping in mind, the high relevance of interaction between members of dyads on several other variables (e.g. teacher-student relationships), it may be concluded that there is a big gap in the literature. The findings of this study highlight the importance of analysing teachers self-efficacy towards individual students instead of measuring self-efficacy globally. With respect to the
practical utility for increasing the understanding of why teachers struggle in inclusive education, specific variables of individual students remain considerably important. For the practical implementation of the present results, it can be underlined that teachers need more training in how to teach in classes where students with specific needs are included, to increase teachers’ self-efficacy towards students with SEN. More specifically, training is needed in dealing with challenging behaviour, followed by knowledge about teaching students with SEN. However, with this result, the question of the causality can be raised: do students struggle with learning and behaviour because teachers do not know how to deal with them? Does the deficit lie in the students’ ability to learn or behave or in the teachers’ ability to teach? With the widespread implementation of inclusive practices, teachers seem to come across more difficulties to meet the wide range of individual needs of the students. Therefore, there is a high need to train all teachers (not only those who are special needs teachers) in becoming more sensitive to diversity and more aware of inclusive pedagogic strategies (Moliner, Sales, Ferrández, & Traver, 2011).

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