The role of primary school teachers’ attitudes and self-efficacy beliefs for everyday practices in inclusive classrooms – a study on the verification of the ‘Theory of Planned Behaviour’

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Within the framework of implementing inclusive education in primary schools, various questions arise concerning the role of teachers’ personal resources in their everyday practices in heterogeneous classrooms. Teachers’ professional personalities as well as their intentions concerning inclusive teaching are considered to be important prerequisites for successful learning environments. Therefore, we examined the relevance of primary school teachers’ personal resources, such as their attitudes towards inclusion and their perceived collective self-efficacy beliefs concerning inclusive teaching, in terms of their everyday practices in heterogeneous classrooms on the basis of the ‘Theory of Planned Behaviour’. We investigated N = 290 primary school teachers’ everyday practices according to their attitudes towards inclusion, their collective self-efficacy beliefs concerning inclusive education, their perceptions of school management’s expectations and their intentions regarding inclusive education. The results of our study indicate that primary school teachers’ everyday practices in heterogeneous classrooms are significantly predicted by their intentions regarding the implementation of inclusive education and by their attitudes towards inclusive education but not by their collective self-efficacy beliefs or by their perceptions of school management’s expectations. Specifically, the effect of teachers’ attitudes on their everyday practices in heterogeneous classrooms is significantly mediated by their intentions regarding the implementation of inclusive education.

Introduction
Following the UN Convention on the rights of people with disabilities, questions concerning the joint education of students with and without special educational needs remain to be answered. Accordingly, pre-service and in-service teachers’ education and training should also be reconsidered. In this regard, strategies that teachers use to successfully manage heterogeneity in inclusive classrooms should be investigated, as should the prerequisites for these teachers’ success. In recent years, several studies have analysed teachers’ handling of children’s individual learning capabilities in inclusive education (e.g., Ahmmed, Sharma and Deppeler, 2014; Batsiou, Bebetsos, Panteli, et al., 2008; MacFarlane and Woolfson, 2013). Specifically, teachers’ attitudes towards inclusion and their self-efficacy beliefs concerning the organisation of inclusive education were assumed to be important predictors for their management of heterogeneity in the inclusive classroom (de Boer, Pijl and Minnaert, 2011; Savolainen, Engelbrecht, Nel, et al., 2012; Sharma and Jacobs, 2016; Sokal and Sharma, 2014). According to Eagly and Chaiken (1993), an attitude is understood as ‘a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour’ (p. 1), whereas self-efficacy beliefs are understood as the perceived ability in oneself with regard to achieving specific aims (Bandura, 1997). Significant correlations between teachers’ attitudes towards inclusion and their self-efficacy beliefs concerning inclusive teaching have been extensively demonstrated (e.g., Hellmich and Görel, 2014; Savolainen, Engelbrecht, Nel, et al., 2012; Sokal and Sharma, 2014).

However, collective self-efficacy is defined as ‘a group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments’ (Bandura, 1997, p. 477).
In most studies, the ‘Theory of Planned Behaviour’ developed by Ajzen (1991) was taken into account to verify determinants (e.g., attitudes towards inclusion, self-efficacy) of teachers’ behaviour in the inclusive classroom. On the basis of his ‘Theory of Planned Behaviour’, Ajzen (1991) tried to explain human behaviour in both ordinary and challenging situations. Specifically, Ajzen (1991) initially assumed that an individual’s behaviour when trying to successfully overcome certain challenges is influenced by his or her behavioural control as well as his or her intention to cope with a challenging situation. Additionally, an individual’s intention is predicted by his or her attitude towards the challenging situation, as well as his or her behavioural control and social norms, such as the perception of a significant other’s expectation. Furthermore, Ajzen (1991) assumes that the impact of an individual’s behavioural control on his or her concrete behaviour in challenging situations is mediated by the existing intention to cope with the specific situation.

The ‘Theory of Planned Behaviour’ (Ajzen, 1991) was often applied to verify determinants of teachers’ handling of heterogeneity in inclusive classrooms. However, the ‘Theory of Planned Behaviour’ (Ajzen, 1991) could only be verified to some extend (e.g., MacFarlane and Woolfson, 2013; Schüle, Schriek, Besa, et al., 2016). In some studies, the ‘Theory of Planned Behaviour’ (Ajzen, 1991) was also only examined from some angles. For instance, teachers’ intentions to cope with heterogeneity in inclusive education were investigated without considering teachers’ actual behaviour (e.g., Ahmmed, Sharma and Deppeler, 2014; Batsiou, Bebetsos, Panteli, et al., 2008; Malak, Sharma and Deppeler, 2018; Sharma and Jacobs, 2016), whereas there are also studies that concentrate on teachers’ behaviour without examining their intentions to handle children’s individual learning capabilities in inclusive education (e.g., Kuyini and Desai, 2007).

Additionally, the individual determinants of teachers’ intentions concerning inclusive education as well as teachers’ behaviour in the inclusive classroom were differently operationalised. Therefore, the individual results of those studies should be considered in light of the respective methodological approaches. In the following, we take a closer look at the results of the present studies and specifically consider the operationalisation of the individual variables. In particular, the role of teachers’ attitudes towards inclusion and their self-efficacy beliefs concerning the organisation of inclusive education (as one of the facets of Ajzen’s ‘behavioural control’) in their intentions are analysed, as are their everyday practices concerning inclusive education.

Prerequisites for teachers’ behavioural intentions
According to Ajzen’s ‘Theory of Planned Behaviour’ (1991), an individual’s intention to cope with a challenging situation is influenced by his or her attitude towards the challenging situation, his or her behavioural control and the perceived social norms, such as a significant other’s expectation. This section of Ajzen’s ‘Theory of Planned Behaviour’ (1991) was investigated with regard to teachers’ intentions to cope with heterogeneity in the inclusive classroom. However, the available findings are not consistent. For instance, the results from a study by Sharma and Jacobs (2016) demonstrate that teachers’ intentions to cope with inclusive education were predicted by their attitudes towards inclusion and by their self-efficacy beliefs. Additionally, Malak, Sharma and Deppeler (2018) indicated positive correlations between teachers’ intentions to teach students with challenging behaviour and their efficacy beliefs concerning classroom management, their attitudes towards students’ challenging behaviour as well as their perceptions of the available school support for teaching students with challenging behaviour. Furthermore, the authors could prove that the teachers’ attitudes and self-efficacy beliefs were significant predictors of their behavioural intentions with regard to teaching students with challenging behaviour. However, the teachers’ perceptions of the available school support did not significantly explain their intentions to teach students with challenging behaviour. The results from the study by Malak, Sharma and Deppeler (2018) are widely consistent with the findings by MacFarlane and Woolfson (2013). The two authors identified teachers’ self-efficacy beliefs as well as their attitudes towards inclusive education as predictors of their intentions to teach children with social, emotional and behavioural difficulties. In that study, teachers’ intentions were not significantly explained by their perceptions of their school principals’ support. Batsiou, Bebetsos, Panteli, et al. (2008) could also not find a significant correlation between primary and kindergarten education teachers’ perceptions of significant others’ expectations and their intentions concerning inclusive learning processes. However, Batsiou, Bebetsos, Panteli, et al. (2008) showed that there was a significant correlation with teachers’ attitudes towards inclusive education and their intentions concerning inclusive education.

Compared to the previously presented studies, the results from a study by Ahmmed, Sharma and Deppeler (2014) indicated that teachers’ intentions to include children with disabilities in regular classrooms were predicted by their attitudes towards inclusive learning, their teacher efficacy beliefs and their perceived school support concerning the implementation of inclusive practices. Particularly noteworthy is the fact that the teachers’ perceived school support was the strongest predictor of their intentions to include children with disabilities in the inclusive classroom.

Although the current research is not fully consistent, the available studies provide evidence that teachers’ intentions regarding inclusive education may be predicted by their attitudes towards inclusion, by their self-efficacy beliefs concerning the organisation of inclusive education and by their perceptions of significant other’s
expectations. The inconsistencies in the available findings are probably traced back to different operationalizations of the constructs. This is also supported by the findings of Knauder and Koschmieder (2019). For instance, significant other’s expectations are operationalized by teachers’ perceptions of the school support (Ahmed, Sharma and Deppeler, 2014; Malak, Sharma and Deppeler, 2018) or by their school principals’ support (MacFarlane and Woolfson, 2013). Different operationalizations of the constructs may lead to different research results in the studies.

**Prerequisites for teachers’ self-reported teaching practices**

In several studies (MacFarlane and Woolfson, 2013; Schüle, Schriek, Besa, et al., 2016; Yan and Sin, 2014), teachers’ behaviour in inclusive classrooms was analysed in relation to their self-efficacy concerning the organisation of inclusive education as well as their intentions to cope with challenging situations in the inclusive classroom. Yan and Sin (2014) replicated Ajzen’s ‘Theory of Planned Behaviour’ on the basis of their own data. Their results from a structural equation model (SEM) indicated that teachers’ behaviour in inclusive education was significantly explained by their behavioural intentions concerning inclusive education as well as by their perceived behavioural control. Furthermore, teachers’ behavioural intentions concerning inclusive education were significantly predicted by their attitudes towards inclusive education, their perceptions of the significant other’s expectations (e.g., parents, community) and their perceived behavioural control. The effect of teachers’ perceived behavioural control on their behaviour in inclusive classrooms was indirectly mediated by their behavioural intentions concerning inclusive education. According to the ‘Theory of Planned Behaviour’ (Ajzen, 1991), the authors could also prove two small total mediation effects: The effect of teachers’ attitudes towards inclusion on their behaviour in inclusive classrooms was totally mediated by their intentions concerning inclusive education. The correlation between teachers’ perceptions of the significant other’s expectations and their behaviour was also totally mediated by their intentions.

In terms of further development of the ‘Theory of Planned Behaviour’ (Ajzen, 1991), Schüle, Schriek, Besa, et al. (2016) investigated whether teachers’ self-reported individualisation of students’ learning processes in inclusive education could be predicted by their attitudes towards inclusion, their self-efficacy beliefs, their perceived social norms and their behavioural intentions. The results from an SEM that was computed by Schüle, Schriek, Besa, et al. (2016) underline that the teachers’ behavioural intentions are predicted by their attitudes towards inclusion and their perceived social norms. The teachers’ self-efficacy beliefs concerning the organisation of inclusive education were not a significant predictor of their behavioural intentions. Additionally, the teachers’ self-reported individualisation of students’ learning processes was significantly explained by their perceived social norms and their behavioural intentions, but it was not explained by their attitudes towards inclusion or by their self-efficacy beliefs. Contrary to the ‘Theory of Planned Behaviour’, the results indicate that the teachers’ behavioural intentions regarding the organisation of inclusive learning processes did not mediate the effect of their self-efficacy beliefs on their self-reported individualisation of students’ learning processes in inclusive education. However, Schüle, Schriek, Besa, et al. (2016) could verify two mediation effects. On the one hand, the effect of teachers’ attitudes towards inclusion on their self-reported individualisation of students’ learning processes in inclusive education was totally mediated by their behavioural intentions. On the other hand, the effect of the teachers’ perceived social norms on their self-reported individualisation of students’ learning processes in inclusive education was partially mediated by their behavioural intentions.

The study by Schüle, Schriek, Besa, et al. (2016) is based on an expansion of the ‘Theory of Planned Behaviour’. The authors assumed that the teachers’ behaviour in inclusive classrooms was directly predicted not only by their behavioural intentions and their self-efficacy beliefs but also by their attitudes towards inclusion and their perceptions of the social norms. These assumptions concerning the further development of the ‘Theory of Planned Behaviour’ are underlined by the results of several studies. The investigations by Kuyini and Desai (2007) as well as Monsen, Ewing and Kwoka (2014) also indicated the role of teachers’ attitudes towards inclusion in inclusive classrooms. For instance, the findings from the study by Monsen, Ewing and Kwoka (2014) support the role of teachers’ attitudes towards inclusion in their effective teaching practices. Students who were taught by teachers with positive attitudes evaluated the classroom environment as more reasonable than did students who were taught by teachers with less positive attitudes. Furthermore, other studies highlighted that teachers’ behaviour in inclusive classrooms was significantly predicted by their perceptions of their school principals’ views on inclusion (MacFarlane and Woolfson, 2013) or by their principals’ beliefs concerning the implementation of inclusive education (Stanovich and Jordan, 1998). In the study by Stanovich and Jordan (1998), teachers’ effective teaching in heterogeneous classrooms was predicted by principals’ beliefs concerning the implementation of inclusive education, but it was not predicted by teachers’ attitudes towards teaching in heterogeneous classrooms or by their self-efficacy beliefs concerning inclusive education.

Overall, the available studies on the ‘Theory of Planned Behaviour’ (Ajzen, 1991) concerning teachers’ management of heterogeneity in inclusive classrooms indicate an unsettled state of research and inconsistent results. Whereas the results of the study by Yan and Sin (2014) are highly congruent with Ajzen’s ‘Theory of Planned Behaviour’ (1991), the findings by Schüle, Schriek, Besa,
et al. (2016) do not correspond to Ajzen’s main hypothetical statements (1991). However, Schüle, Schriek, Besa, et al. (2016) verified an alternative version of Ajzen’s ‘Theory of Planned Behaviour’ (1991), which is based on the results of several other studies (Kuyini and Desai, 2007; MacFarlane and Woolfson, 2013; Monsen, Ewing and Kwoka, 2014; Stanovich and Jordan, 1998). Currently, the original ‘Theory of Planned Behaviour’ (Ajzen, 1991) and its further development should be more precisely empirically verified regarding teachers’ intentions and their management of heterogeneity in inclusive classrooms.

**Hypotheses**

Following the current state of research, we take the ‘Theory of Planned Behaviour’ (Ajzen, 1991) as the starting point of our study and demonstrate the determinants of primary school teachers’ everyday practices in heterogeneous classrooms. Specifically, we assume, based on the findings of several studies (Ahmmed, Sharma and Deppeler, 2014; Batsiou, Bebetosos, Panteli, et al., 2008; MacFarlane and Woolfson, 2013; Malak, Sharma and Deppeler, 2018; Schüle, Schriek, Besa, et al., 2016; Sharma and Jacobs, 2016; Yan and Sin, 2014), that primary school teachers’ intentions regarding the implementation of inclusion are significantly predicted by their attitudes towards inclusion, their self-efficacy beliefs concerning teaching in inclusive classrooms and their perceptions of their school management’s expectations.

Hypothesis 1Primary school teachers’ intentions regarding the implementation of inclusion are significantly predicted by their attitudes towards inclusion, their self-efficacy beliefs concerning teaching in inclusive classrooms and their perceptions of their school management’s expectations.

According to Ajzen’s ‘Theory of Planned Behaviour’ (1991) as well as the findings of several studies (Kuyini and Desai, 2007; Schüle, Schriek, Besa, et al., 2016; Yan and Sin, 2014), we expect that the teachers’ self-reported everyday practices in heterogeneous classrooms can significantly be explained by their self-efficacy beliefs as well as by their intentions regarding the organisation of inclusive education. In terms of further development of the ‘Theory of Planned Behaviour’ (Ajzen, 1991), several studies indicate that teachers’ everyday practices in heterogeneous classrooms are also significantly predicted by their attitudes towards inclusion (Kuyini and Desai, 2007; Monsen, Ewing and Kwoka, 2014)\(^2\) as well as by their perceptions of their school management’s expectations concerning inclusive education (MacFarlane and Woolfson, 2013; Schüle, Schriek, Besa, et al., 2016; Stanovich and Jordan, 1998). For this reason, we make the following (explorative) assumptions:

Hypothesis 2(a) Primary school teachers’ self-reported everyday practices in heterogeneous classrooms can be significantly predicted by their self-efficacy beliefs as well as by their intentions regarding the organisation of inclusive education. (b) Furthermore, primary school teachers’ self-reported everyday practices in heterogeneous classrooms are also significantly explained by their attitudes towards inclusion and their perceptions of their school management’s expectations concerning the organisation of inclusive education.

Based on Ajzen’s ‘Theory of Planned Behaviour’ (1991) and the findings by Yan and Sin (2014), we make the assumption that the effect of primary school teachers’ self-efficacy beliefs concerning teaching in inclusive classrooms on their everyday practices in heterogeneous classrooms is mediated by their intentions regarding the implementation of inclusion.

Hypothesis 3The effect of primary school teachers’ self-efficacy beliefs concerning the organisation of inclusive education on their self-reported everyday practices in heterogeneous classrooms is significantly mediated by their intentions regarding inclusive education.

The individual hypotheses were verified using the theoretical SEM, which is presented in Figure 1. In the hypothetical SEM, Ajzen’s original ‘Theory of Planned Behaviour’ (1991) is visualised in solid lines (Hypotheses 1, 2a and 3). Both of the dashed lines (Hypothesis 2b) illustrate paths in the hypothetical SEM, which are based on the results of several studies (Kuyini and Desai, 2007; MacFarlane and Woolfson, 2013; Monsen, Ewing and Kwoka, 2014; Schüle, Schriek, Besa, et al., 2016; Stanovich and Jordan, 1998; Yan and Sin, 2014). These lines can be understood as further developments of the ‘Theory of Planned Behaviour’ (Ajzen, 1991).

**Method**

**Participants**

In our study, N = 290 primary school teachers from 62 schools in Germany (North Rhine-Westphalia/Lower Saxony) were asked to fill in a questionnaire. The teachers’ average age was 42 years (M = 42.19, SD = 10.70, Min = 25 years, Max = 66 years). Specifically, 266 female and 23 male primary school teachers participated in our study. One teacher did not provide any information on sex in the questionnaire. Overall, 138 teachers who participated in our study educate in inclusive primary schools, whereas 148 teachers work in regular primary schools where students with and without special

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\(^2\)The current state of research concerning the role of teachers’ attitudes towards inclusion on their behaviour in inclusive classrooms is not consistent. For example, Schüle, Schriek, Besa, et al. (2016) and MacFarlane and Woolfson (2013) could not find a significant relationship between teachers’ attitudes and their behaviour, while other studies reveal that teachers’ attitudes play an important role for teaching and the classroom environment (Kuyini and Desai, 2007; Monsen, Ewing and Kwoka, 2014).
educational needs are not enrolled together. Only four primary school teachers did not answer questions concerning their type of school.

**Measures**

In our study, the primary school teachers provided information on their attitudes towards inclusion, their collective self-efficacy beliefs concerning the organisation of inclusive education, their perceived school management’s expectations, their intentions regarding the implementation of inclusive education and their self-reported everyday practices in heterogeneous classrooms using a questionnaire. Before answering each of the questionnaire scales, the primary school teachers received the following information: ‘The organisation of inclusive learning processes is one of the most important challenges in schools. The objective is currently to implement effective learning environments that foster joint learning processes of students with and without special educational needs. In our questionnaire, we would like to address some questions to you regarding the implementation of inclusive learning processes in primary school’.

**Attitudes towards inclusion.** Their attitudes towards inclusion were measured on the basis of a self-developed questionnaire scale (five items; e.g., ‘In the classroom, learning conditions and performance prerequisites of all children should be taken into account’/‘In the classroom, the social participation of all children should be made possible’; \( M = 4.58, SD = 0.54, \text{Min} = 1.00, \text{Max} = 5.00, M_d = 4.80; \) answer format: 1 = totally disagree, 2 = partly disagree, 3 = undecided, 4 = partly agree, 5 = totally agree; \( \alpha = 0.86 \)). The development of the questionnaire scale ‘Attitudes towards inclusion’ was realized on the basis of statements from school and education policy regulations in Germany (e.g., Sekretariat der Ständigen Konferenz der Kultusminister der Bundesrepublik Deutschland, 2011).

**Collective self-efficacy beliefs.** Based on the work of Skaalvik and Skaalvik (2007), a scale was applied to investigate teachers’ perceived collective self-efficacy beliefs concerning the organisation of inclusive education either by themselves or in cooperation with a colleague (eight items; e.g., ‘What is your opinion? Can you realise the following activities in inclusive classrooms better on your own or in cooperation with another teacher?’ – ‘Adapting learning tasks to children’s individual needs’/‘Supporting children’s learning processes when they solve challenging tasks’; \( M = 4.49, SD = 0.59, \text{Min} = 1.75, \text{Max} = 5.00, M_d = 1.80; \) answer format: 1 = better on my own, 2 = partly better alone, 3 = undecided, 4 = partly in cooperation with someone else, 5 = better in cooperation with someone else; \( \alpha = 0.87 \)). On the basis of statements from school and education policy regulations (e.g., Sekretariat der Ständigen Konferenz der Kultusminister der Bundesrepublik Deutschland, 2011), it is pursued that primary school teachers and special needs teachers organise inclusive learning processes for students with and without special educational needs. Therefore, primary school teachers’ self-efficacy beliefs relate to their perceived collective abilities to organise inclusive learning processes. Therefore, the primary school teachers indicate in this questionnaire scale if they are more convinced to master challenging situations in the inclusive classroom in collaboration with special needs teachers than on their own.

**Perceived school management’s expectations.** Following Mahat (2008) and Wertheim and Leyser (2002), we developed a questionnaire scale to measure primary school teachers’ perceptions of their school management’s expectations (four items; e.g., ‘My school management expects from me that I encourage all children to take part in social activities in the classroom’/‘My school management expects from me that I take care of a positive classroom climate that supports children’s learning processes’; \( M = 4.46, SD = 0.54, \text{Min} = 2.50, \text{Max} = 5.00, M_d = 4.75; \) answer format: 1 = totally disagree, 2 = partly disagree, 3 = undecided, 4 = partly agree, 5 = totally agree; \( \alpha = 0.78 \)).

**Intentions.** Furthermore, a scale on the basis of a vignette (‘Imagine that you have a new child in your classroom. The child has great problems in literacy and numeracy. The child needs more time than the other students to complete the schoolwork’) was applied to investigate primary school teachers’ intentions regarding the implementation of inclusive education. Based on the work of de Boer, Pijl, Minnaert et al. (2014), the vignette was developed by Schwab (2015) and adopted by us. The primary school teachers’ intentions to include this hypothetical primary school student with learning disabilities in their classroom were measured by means of a scale including five items (e.g., ‘I would consider the child’s individual needs in planning and providing education’/‘I would give the child additional help and learning material in the inclusive classroom’; \( M = 4.26, SD = 0.63, \text{Min} = 1.80, \text{Max} = 5.00, M_d = 4.20; \) answer format: 1 = totally disagree, 2 = partly disagree, 3 = undecided, 4 = partly agree, 5 = totally agree;
α = 0.83). We adapted this questionnaire scale from a study by Roy, Guay and Valois (2013).

Self-reported everyday practices. Finally, we measured the primary school teachers’ self-reported everyday practices in heterogeneous classrooms on the basis of a questionnaire scale by Wertheim and Leyser (2002) (five items; e.g., ‘How often do you use the following measures of teaching?’ – ‘In my lessons, all children get different forms of learning tasks on the same learning topic that correspond to their individual learning abilities?’ ‘My lessons are openly created, so that all children can work on the same learning topic depending on their individual learning rates and rhythms’; M = 3.63, SD = 0.70, Min = 1.80, Max = 5.00, Md = 3.60; answer format: 1 = never, 2 = seldom, 3 = occasionally, 4 = often, 5 = very often; α = 0.83). In each case, the teachers made their assessments on 5-point Likert scales.

The questionnaire scales that were applied in our study could not be empirically tested in the preliminary studies. Thus, there are restrictions concerning the internal validity of the individual questionnaire scales. However, the instruments could be differentiated using factor analyses. For instance, the items of the scales for primary school teachers’ attitudes towards inclusion and for their perceived collective self-efficacy beliefs concerning teaching in inclusive education could clearly be separated. In Table 1, the cross-correlation matrix concerning the measured variables is presented. The individual questionnaire scales correlate only marginally with each other. The construct-related scales correlate higher than the questionnaire scales that are not construct-related. For instance, the correlation is r = 0.42 (P ≤ 0.001) for the primary school teachers’ intentions regarding the implementation of inclusive education and their self-reported everyday practices in heterogeneous classrooms. However, the correlation value between the primary school teachers’ perceived collective self-efficacy beliefs concerning teaching in inclusive education and their intentions regarding the implementation of inclusive education is only r = 0.17 (P ≤ 0.01).

Procedure

The primary school teachers were personally invited by us to participate in our study. They had sufficient time to complete the questionnaire. On average, they completed the questionnaire in 20 minutes. The survey was conducted by several research assistants, who received implementation instructions for conducting the survey individually at each school. Thus, the objectivity of the application was ensured. The survey’s response rate of 58% was sufficient. Overall, 500 copies of our questionnaire were distributed among the primary school teachers. We received 290 completed questionnaires.

Data Analyses

For the evaluation of our hypotheses, two SEMs were calculated using Mplus (version 6) (Muthén and Muthén, 1998–2010). To estimate the relevant model parameters, the ML estimation algorithm was used in both cases (Muthén and Muthén, 1998–2010). The missing data were not imputed in either model. The full-information-maximum-likelihood method (FIML) (Muthén and Muthén, 1998–2010) was applied in each case. 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 the missing values but on the observed ones). When calculating the standard errors and the model fits, the design effects were taken into consideration.

Table 1: Summary of intercorrelations and descriptive statistics for the measured variables

|                      | (1) Attitudes towards inclusiona | (2) | (3) | (4) | (5) |
|----------------------|---------------------------------|-----|-----|-----|-----|
| (1) Attitudes towards inclusiona |                                | 0.35*** |     |     |     |
| (2) School management’s expectationsb |                                | −0.02 | 0.09 |     |     |
| (3) Self-efficacy beliefsb | 0.35*** | 0.36*** | 0.17** |     |     |
| (4) Intentionsb | 0.29*** | 0.30*** | 0.02 | 0.42*** |     |
| (5) Everyday practicesc |                                | M    | SD  | Min | Max |
|                      |                                | 4.58 | 0.54 | 1.00 | 5.00 |
|                      |                                | 4.46 | 0.54 | 2.50 | 5.00 |
|                      |                                | 4.49 | 0.59 | 1.75 | 5.00 |
|                      |                                | 4.26 | 0.63 | 1.80 | 5.00 |
|                      |                                | 3.63 | 0.70 | 1.80 | 5.00 |
| Skewness             | −2.26                          | −0.90 | −1.29 | −0.72 | −0.17 |
| Kurtosis             | 8.26                           | 0.27 | 1.80 | 0.62 | −0.22 |

Notes: Annotations: a1 = totally disagree, 2 = partly disagree, 3 = undecided, 4 = partly agree, 5 = totally agree; b1 = better on my own, 2 = partly better alone, 3 = undecided, 4 = partly in cooperation with someone else, 5 = better in cooperation with someone else; c1 = never, 2 = seldom, 3 = occasionally, 4 = often, 5 = very often. **P ≤ 0.01. ***P ≤ 0.001.
For the estimation of the model fits, a cut-off value of $\chi^2/df \leq 3.00$ was used as a criterion for the acceptance of the empirical models in each case (Homburg and Giering, 1997). As a criterion for a good fit for the comparative fit index (CFI) and the Tucker–Lewis-index (TLI) we chose a value close to 0.90 (Bentler, 1990; Browne and Cudeck, 1993; Hu and Bentler, 1999). According to Homburg and Baumgartner (1995), a cut-off of $\text{CFI} \geq 0.90$ is still an ‘acceptable’ model-fit.

We determined cut-off values for the root mean square error of approximation (RMSEA) according to Browne and Mühlaus (2014) and West, Finch and Curran (1995), the following values have been established for the assumption of normal distribution: skewness ($|<2$) and kurtosis ($|<7$). The two variables ‘attitudes towards inclusion’ and ‘self-efficacy beliefs’ just slightly miss the criteria.

The primary school teachers hold positive attitudes towards inclusion. Furthermore, the results indicate that primary school teachers have high collective self-efficacy beliefs concerning teaching in inclusive education. They evaluated the expectations of their school management as well above the average. Their intentions regarding the implementation of inclusive learning processes and their everyday practices in heterogeneous classrooms are also highly pronounced.

The correlations implemented in Table 1 are latent. With regard to our hypotheses, the results indicate low to intermediate bivariate correlations with the primary school teachers’ intentions regarding the implementation of inclusive learning processes and their attitudes towards inclusion, their collective self-efficacy beliefs concerning teaching in inclusive education and their perceptions of their school management’s expectations. The primary school teachers’ everyday practices in heterogeneous classrooms correlate at significantly low to intermediate levels with their intentions regarding the implementation of inclusive learning processes, their attitudes towards inclusion and their perceptions of their school management’s expectations. Contrary to our expectations, one cannot observe a significant correlation between primary school teachers’ everyday practices in heterogeneous classrooms and their perceived collective self-efficacy beliefs concerning teaching in inclusive education.

To examine our research hypotheses, two SEMs were computed in Mplus. With the first SEM, we examined whether Ajzen’s initial ‘Theory of Planned Behaviour’ (1991) could be replicated by means of our data. Therefore, primary school teachers’ attitudes towards inclusion, their collective self-efficacy beliefs, their intentions regarding inclusive education and their perceptions of their school management’s expectations were modelled as exogenous variables. Teachers’ everyday practices in heterogeneous classrooms were set as an endogenous variable. Additionally, the primary school teachers’ intentions regarding the implementation of inclusive education were modelled as a mediator between their perceived collective self-efficacy beliefs concerning inclusive education and their self-reported everyday practices in heterogeneous classrooms. In the second SEM, which was computed by us in Mplus, we proceeded in a similar way. In terms of further development of Ajzen’s ‘Theory of Planned Behaviour’ (1991), the primary school teachers’ attitudes towards inclusion and their perceptions of their school management’s expectations concerning the organisation of inclusive education were set to be predictors for the teachers’ self-reported everyday practices in heterogeneous classrooms (cf. Figure 1).

The first SEM is presented in Figure 2. In the SEM, the significant paths are displayed as solid lines. Non-significant paths are illustrated as dashed lines.

In Table 2, the standardised factor loadings from the confirmatory factor analysis are presented. In addition, the standardised beta values of all the relationships in the SEM are provided in Table 3.

The empirical SEM shows a good fit for the theoretical model structure: $\chi^2 = 716.81, \text{df} = 316, \chi^2/\text{df} = 2.27, P \leq 0.001$. In comparison to the theoretical model structure, the sizes of the CFI = 0.88 and the TLI = 0.87 illustrate nearly acceptable fits for the empirical model. The RMSEA shows an acceptable value, with RMSEA = 0.07 ($P_{\text{close}} = 0.00$). Although the value for the $P_{\text{close}}$ is less than 0.05, the confidence interval (CI = 0.06–0.07)

**Figure 2: Results of the structural equation model: replication of Ajzen’s ‘Theory of Planned Behaviour’ (1991). Notes:** $*P \leq 0.05, **P \leq 0.01, ***P \leq 0.001$
Table 2: Standardised factor loadings from the confirmatory factor analysis: replication of Ajzen’s ‘Theory of Planned Behaviour’ (1991)

| Variable                           | β     | SE  |
|------------------------------------|-------|-----|
| Attitudes towards inclusion        |       |     |
| 1                                  | 0.75***| 0.03|
| 2                                  | 0.80***| 0.03|
| 3                                  | 0.55***| 0.05|
| 4                                  | 0.81***| 0.03|
| 5                                  | 0.82***| 0.03|
| School management’s expectations   |       |     |
| 1                                  | 0.81***| 0.03|
| 2                                  | 0.66***| 0.04|
| 3                                  | 0.73***| 0.04|
| 4                                  | 0.61***| 0.05|
| Self-efficacy beliefs              |       |     |
| 1                                  | 0.56***| 0.05|
| 2                                  | 0.53***| 0.05|
| 3                                  | 0.54***| 0.05|
| 4                                  | 0.54***| 0.05|
| 5                                  | 0.78***| 0.03|
| 6                                  | 0.87***| 0.02|
| 7                                  | 0.76***| 0.03|
| 8                                  | 0.72***| 0.03|
| Intentions                         |       |     |
| 1                                  | 0.76***| 0.03|
| 2                                  | 0.81***| 0.03|
| 3                                  | 0.65***| 0.04|
| 4                                  | 0.68***| 0.04|
| 5                                  | 0.62***| 0.04|
| Everyday practices                 |       |     |
| 1                                  | 0.69***| 0.04|
| 2                                  | 0.72***| 0.04|
| 3                                  | 0.76***| 0.03|
| 4                                  | 0.66***| 0.04|
| 5                                  | 0.76***| 0.03|

### Table 3: Standardised beta values of all relationships in the structural equation model: replication of Ajzen’s ‘Theory of Planned Behaviour’ (1991)

| Latent variable                                    | β   | P     | SE  | R²  |
|----------------------------------------------------|-----|-------|-----|-----|
| Everyday practices                                 |     |       |     | 0.28***|
| Intentions                                         | 0.54| ≤0.001| 0.06|
| Self-efficacy beliefs                               | -0.10| 0.13 | 0.06|
| Intentions                                         |     |       |     | 0.33***|
| Attitudes towards inclusion                        | 0.31| ≤0.001| 0.07|
| School management’s expectations                   | 0.33| ≤0.001| 0.07|
| Self-efficacy beliefs                               | 0.19| ≤0.01 | 0.06|

***p ≤ 0.001.

Supporting Hypothesis 1, the results from the first SEM indicate that primary school teachers’ intentions towards inclusion, by their collective self-efficacy beliefs as well as by their perceptions of their school management’s expectations with an explained variance of 33%. Supporting Hypothesis 2a, primary school teachers’ everyday practices in heterogeneous classrooms are significantly explained by their intentions regarding the implementation of inclusive education with an explained variance of 28%. Not supporting Hypotheses 2a and 3, primary school teachers’ everyday practices in heterogeneous classrooms are not predicted by their perceived collective self-efficacy beliefs concerning inclusive education. It can also be shown that the effect of primary school teachers’ collective self-efficacy beliefs on their everyday practices in heterogeneous classrooms is not significantly mediated by their intentions concerning inclusive education. However, an indirect effect (β indirect = 0.10; P ≤ 0.05; β total = 0.00; P = 0.96) can be observed. In this case, one can assume a suppression effect concerning the total mediation because the direct and the indirect effects cancel out. Thus, an actual total mediation effect does not exist. Moreover, the results indicate two more indirect effects: The effect of primary school teachers’ attitudes towards inclusion on their everyday practices in heterogeneous classrooms is significantly mediated by their intentions concerning inclusive education (β indirect = 0.16; P ≤ 0.001). Furthermore, the variable ‘intentions’ acts as a significant mediator concerning the effect of primary school teachers’ perceptions of their school management’s expectations on their everyday practices in heterogeneous classrooms (β indirect = 0.18; P ≤ 0.001).

The results from the second SEM, which we computed in Mplus, are presented in Figure 3 as well as in Tables 4 and 5. The empirical SEM also shows an acceptable fit for the theoretical model structure: χ² = 708.54, df = 314, χ²/df = 2.26, P ≤ 0.001, CFI = 0.88, TLI = 0.87, RMSEA = 0.07 (P close = 0.00), CI = 0.06–0.07.

On the basis of the results from the second SEM, Hypothesis 1 is confirmed: Primary school teachers’ intentions regarding the implementation of inclusive education are significantly predicted by their attitudes towards inclusion, by their collective self-efficacy beliefs as well as by their perceptions of their school management’s expectations with an explained variance of 31%. Hypothesis 2a/b can only be confirmed in some aspects:
Teachers’ everyday practices in heterogeneous classrooms are significantly explained by their attitudes towards inclusion and by their intentions regarding the implementation of inclusive education with an explained variance of 29%. Primary school teachers’ perceptions of their school management’s expectations and their perceived collective self-efficacy beliefs do not constitute predictors for their everyday practices in heterogeneous classrooms. On the basis of our empirical results from the second SEM, Hypothesis 3 that the effect of teachers’ collective self-efficacy beliefs on their self-reported everyday practices is significantly mediated by their intentions concerning inclusive education, must be rejected ($\beta_{\text{indirect}} = 0.07; P \leq 0.001; \beta_{\text{total}} = 0.00; P = 0.95$). It is likely that there is a suppression effect concerning this mediation, as already described above.

Furthermore, our results indicate that the effect of teachers’ attitudes on their everyday practices in heterogeneous classrooms is significantly mediated by their intentions regarding the implementation of inclusive education ($\beta_{\text{indirect}} = 0.12; P \leq 0.01; \beta_{\text{total}} = 0.28; P \leq 0.001$). Finally, it becomes clear that the effect of the teachers’ perceptions of their school management’s expectations on their everyday practices in heterogeneous classrooms is also significantly mediated by their intentions regarding the implementation of inclusive education ($\beta_{\text{indirect}} = 0.13; P \leq 0.01; \beta_{\text{total}} = 0.23; P \leq 0.01$).

According to Figure 3, primary school teachers’ everyday practices are not significantly predicted by their perceptions of their school management’s expectations. Therefore, we calculated an alternative model. In this alternative model, the mediator variable ‘intentions regarding the implementation of inclusive education’ was eliminated ($\chi^2 = 438.73$, df = 203, $\chi^2$/df = 2.16, $P \leq 0.001$, CFI = 0.91, TLI = 0.90, RMSEA = 0.06, $F_{\text{close}} = 0.00$, CI = 0.06–0.07). The alternative model indicates a significant effect of the expectations of school management on teachers’ everyday practices. Thus, an actual total mediation effect exists.

**Discussion**

The aim of our study was to verify the importance of primary school teachers’ personal resources, such as their attitudes towards inclusion and their perceived collective self-efficacy beliefs concerning inclusive education, in terms of their everyday practices in heterogeneous classrooms on the basis of Ajzen’s ‘Theory of Planned Behaviour’ (1991). In detail, we investigated, by means of an SEM, whether and to what extent primary school teachers’ everyday practices in heterogeneous classrooms can be predicted by their perceived collective self-efficacy beliefs concerning inclusive education as well as by their intentions regarding inclusive education. On the basis of several empirical findings (Kuyini and Desai, 2007; MacFarlane and Woolfson, 2013; Monsen, Ewing and Kwoka, 2014; Schüle, Schriek, Besa, et al., 2016; Stanovich and Jordan, 1998), we integrated two more predictors in our model (attitudes towards inclusion, perceived school management’s expectations) to further develop Ajzen’s ‘Theory of Planned Behaviour’. Additionally, we assumed that the primary school teachers’ intentions concerning the organisation of inclusive education are significantly predicted by their attitudes towards inclusion, their perceived collective self-efficacy beliefs and the expectations of their school management. According to Ajzen (1991), we expected that the effect of primary school teachers’ collective self-efficacy beliefs concerning inclusive education on their everyday practices in heterogeneous classrooms would be significantly mediated by their intentions regarding inclusive education.

Supporting Hypothesis 1, the results of our analyses indicate that primary school teachers’ intentions concerning the organisation of inclusive education are significantly predicted by their attitudes towards inclusion, their perceived collective self-efficacy beliefs and the expectations of their school management. These findings correspond with Ajzen’s ‘Theory of Planned Behaviour’ and underline the empirical findings by Yan and Sin (2014). In particular, with regard to primary school teachers’ intentions concerning the organisation of inclusive education, our results highlight the importance of attitudes towards inclusion as well as self-efficacy beliefs.

Furthermore, the results from our study support only some aspects of Hypothesis 2a/b. Our findings from the first SEM, which we computed in Mplus, provide evidence for the fact that primary school teachers’ self-reported everyday practices in heterogeneous classrooms are predicted by their intentions concerning the organisation of inclusive education. However, primary school teachers’ collective self-efficacy beliefs did not constitute a significant predictor for their everyday practices in heterogeneous classrooms. By including two additional variables in the model, we found that primary school teachers’ self-reported everyday practices in heterogeneous classrooms are not only significantly predicted by their intentions concerning the organisation of inclusive education.
*Table 4: Standardised factor loadings from the confirmatory factor analysis: further development of Ajzen’s ‘Theory of Planned Behaviour’ (1991)*

| Variable                      | β     | SE  |
|-------------------------------|-------|-----|
| Attitudes towards inclusion   |       |     |
| 1                             | 0.75***| 0.03|
| 2                             | 0.80***| 0.03|
| 3                             | 0.55***| 0.05|
| 4                             | 0.81***| 0.03|
| 5                             | 0.82***| 0.03|
| School management’s expectations |     |     |
| 1                             | 0.81***| 0.03|
| 2                             | 0.66***| 0.04|
| 3                             | 0.73***| 0.04|
| 4                             | 0.61***| 0.05|
| Self-efficacy beliefs         |       |     |
| 1                             | 0.56***| 0.05|
| 2                             | 0.53***| 0.05|
| 3                             | 0.54***| 0.05|
| 4                             | 0.54***| 0.05|
| 5                             | 0.78***| 0.03|
| 6                             | 0.87***| 0.02|
| 7                             | 0.76***| 0.03|
| 8                             | 0.72***| 0.03|
| Intentions                    |       |     |
| 1                             | 0.77***| 0.03|
| 2                             | 0.81***| 0.03|
| 3                             | 0.66***| 0.04|
| 4                             | 0.69***| 0.04|
| 5                             | 0.61***| 0.04|
| Everyday practices            |       |     |
| 1                             | 0.67***| 0.04|
| 2                             | 0.72***| 0.04|
| 3                             | 0.75***| 0.03|
| 4                             | 0.66***| 0.04|
| 5                             | 0.76***| 0.03|

***p ≤ 0.001.

**Table 5: Standardised beta values of all relationships in the structural equation model: further development of Ajzen’s ‘Theory of Planned Behaviour’ (1991)**

| Latent variable               | β     | P       | SE  | R²   |
|-------------------------------|-------|---------|-----|------|
| Everyday practices            |       |         |     | 0.29***|
| Intentions                    | 0.40  | ≤0.001  | 0.08|
| Attitudes towards inclusion   | 0.16  | ≤0.05   | 0.07|
| School management’s expectations | 0.10  | 0.22    | 0.08|
| Self-efficacy beliefs         | -0.07 | 0.27    | 0.06|
| Intentions                    |       |         |     | 0.31***|
| Attitudes towards inclusion   | 0.29  | ≤0.001  | 0.07|
| School management’s expectations | 0.33  | ≤0.001  | 0.07|
| Self-efficacy beliefs         | 0.19  | ≤0.01   | 0.06|

***P ≤ 0.001.

Ajzen’s ‘Theory of Planned Behaviour’ (1991). Additionally, the current results of empirical studies are inconsistent: While Schüle, Schriek, Besa, et al. (2016) as well as MacFarlane and Woolfson (2013) could not find a significant relationship between teachers’ attitudes and their behaviour, other studies reveal that teachers’ attitudes play an important role for teaching and the classroom environment (Kuyini and Desai, 2007; Monsen, Ewing and Kwoka 2014). Nevertheless, our results underline that teachers’ attitudes towards inclusion should be regarded as one important predictor of their (self-reported) behaviour in inclusive education in further studies concerning the replication or the further development of Ajzen’s model (1991).

Not supporting Hypothesis 3, the results of our study indicate that the effect of primary school teachers’ collective self-efficacy beliefs on their self-reported everyday practices in heterogeneous classrooms is not significantly mediated by their intentions regarding the organisation of inclusive education. On the one hand, this finding is traced back to the fact that there is no significant direct path from primary school teachers’ collective self-efficacy beliefs to their everyday practices in heterogeneous classrooms. On the other hand, this finding, which is not consistent with Ajzen’s ‘Theory of Planned Behaviour’ (1991), stems from our research method. In our study, we focused more on primary school teachers’ collective than on their individual self-efficacy beliefs. This unexpected result may not lead to a full acceptance of ‘The Theory of Planned Behaviour’ based on our data. In further studies, the measurement of teachers’ self-efficacy beliefs concerning inclusive education should be adequately reconsidered.

The limitations concerning the results of our study must be taken into consideration. Essentially, these restrictions are related to the questionnaire scales that we used in education but also by their attitudes towards inclusion. Although these results of our study are not congruent with Ajzen’s initial ‘Theory of Planned Behaviour’ (1991), they correspond with those of Kuyini and Desai (2007) and Monsen, Ewing and Kwoka (2014). Specifically, our findings show that the effect of primary school teachers’ attitudes towards inclusion on their self-reported everyday practices in heterogeneous classrooms is significantly mediated by their intentions concerning the organisation of inclusive education. This finding illustrates the importance of teachers’ attitudes towards inclusion for their intentions as well as for their everyday practices in primary school. However, this finding does not support...
examining our hypotheses. We developed individual questionnaire scales based on available instruments or new scales. These questionnaire scales could not be empirically tested in the preliminary studies. Thus, there are restrictions concerning the internal validity of the instruments applied in our investigation. In further studies, the internal validity of the questionnaire scales should be verified.

In our study, the primary school teachers’ response behaviour illustrates high means of each of the questionnaire scales. The primary school teachers could have probably been primed by the questionnaire’s introduction, so that their answers could be biased in a socially desirable response behaviour towards inclusion. In further studies, questionnaire scales to control the teachers’ social desirability should be integrated in the study designs.

As an additional limitation, our hypotheses were examined utilising a cross-sectional study. Thus, the causes and effects could not be investigated. The results only provide information about the correlations regarding the examined variables. In subsequent studies, our findings should be reconsidered in a long-term perspective to evaluate the cause-effect mechanisms.

Of course, in terms of the results of our study, there are further limitations related to our methodology. The primary school teachers’ everyday practices in heterogeneous classrooms were investigated using a questionnaire scale and focused on their self-reported information. In further studies, the methodological approach should be varied. For instance, primary school teachers’ practices in heterogeneous classrooms could also be measured by observations of their actual behaviour in the classrooms. This could possibly be a way to control and validate teachers’ self-reported practices in heterogeneous classrooms. Undoubtedly, primary school teachers’ self-reported practices in heterogeneous classrooms may not be closely aligned with their actual behaviour at school.

In summary, the results of our study indicate the importance of primary school teachers’ attitudes towards inclusive education, their perceived collective self-efficacy beliefs and their perceptions of their school management’s expectations for their intentions regarding inclusive education. On the basis of our study, we succeeded in verifying Ajzen’s ‘Theory of Planned Behaviour’ (1991) to a certain extent. The results of our study underline the role of primary school teachers’ attitudes towards inclusion and their intentions concerning inclusive education for their self-reported everyday practices in heterogeneous classrooms. However, the importance of primary school teachers’ collective self-efficacy beliefs concerning inclusive education for their practices in heterogeneous classrooms could not be proven by means of our study. This situation is probably due to the methodological approach of our study. Nevertheless, our research findings could be integrated into in-service teachers’ education and training, even though our study focuses more on fundamental research.

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