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# Classroom behavioural climate in inclusive education – a study on secondary students' perceptions

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**Key words:** Classroom behaviour climate, social behaviour, inclusion climate, social inclusion.

**Previous studies pointed out that dealing with difficult behaviour is perceived by teachers as a major challenge in inclusive settings. However, research on the students' perception of the classroom behavioural climate (CBC) is rare. Therefore, this study aims to examine students' perceptions of CBC and to identify predictors of CBC as well as associated variables. The sample consists of 650 German students from secondary schools (5th-9th grade) of whom 83 students are diagnosed with special educational needs (SEN). CBC was measured via four subscales ('students' possibilities to study and concentrating on teaching', 'disruptive behaviour', 'physical and psychological safety' and caring for the physical environment'). Results show significant differences in students' perceptions of CBC between students from different school tracks. Furthermore, gender (being male) and SEN (having a) predict the perception of physical and psychological safety'. Additionally, social inclusion, emotional experience as well as teacher support and care are associated with CBC. Accordingly, a positive CBC is important for the successful implementation of inclusive education: while diversity in classrooms is a challenge for behavioural climate, poor behavioural climate may also pose specific barriers to learning for some students with SEN and thus is a general challenge for equity in inclusive classrooms.**

## Introduction

The successful implementation of inclusion has been one of the most important goals of European education policy in recent years, including Germany. With the entry into force and ratification of the United Nations' Convention on the Rights of Persons with Disabilities (CRPD), Germany has committed itself to establish an inclusive school

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system (United Nations, 2006). As a major challenge in inclusive settings, teachers perceive the teaching of students with behavioural difficulties (Spilt and Koomen, 2009) and classroom disruptions as major stress factors (Klassen and Chiu, 2010).

Consequently, it can be assumed that a positive classroom climate, where the role of the teacher is important, can be regarded as a necessary condition for the successful implementation of inclusion. In previous studies, classroom climate has been operationalised in various ways. In this study, the understanding of behavioural climate is based on the work of Närhi, Kiiski, Peitso, and Savolainen (2015) as well as on Närhi, Kiiski, and Savolainen (2017) and includes both positive as well as negative elements of climate. This classroom behavioural climate (CBC) includes positive learning possibilities, disruptive behaviours, psychological and physical safety and caring about the classroom environment. Good CBC is a product of both teacher and student behaviour. The teacher, with his/her pedagogical and classroom management practices, provides the basis for good behavioural climate and the students are responsible for their own behaviour to maintain good behavioural climate.

This understanding of CBC is based on the operational definition of behavioural climate by Levin and Nolan (2010) which states that disruptive behaviours hamper the students' possibilities to concentrate on learning, disrupt teaching and learning situations, threaten the psychological or physical safety of the students or disrupt the physical environment of the classroom. Good behavioural climate can be defined as a situation where students can concentrate on learning, can feel both psychologically and physically safe, take appropriate care of the physical environment, and do not, with their own behaviours, disrupt learning situations.

A look into the literature shows that the topic CBC has not yet been sufficiently investigated in this form. Nevertheless, related research, such as on students' well-being,

bullying, class climate and disciplinary climate, gives interesting indications of its importance in an inclusive context. Teachers in inclusive contexts find dealing with challenging behaviour to be particularly stressful and difficult (Leidig and Pössinger, 2017). Thus, teachers regard disruptions in teaching as one of the most difficult aspects of (inclusive) education (Eckstein, Grob and Reusser, 2016). But not only teachers, students also struggle with peers with behaviour problems (Schwab, 2018). Research shows a strong link between classroom disciplinary climate and students' individual school outcomes (Hattie, 2009; Scheerens, Witziers and Steen, 2013; Sortkær and Reimer, 2018). Therefore, it is meaningful to also address this topic as an important issue in the implementation of inclusive schooling. In addition, negative peer relations impact individual students' well-being and health. For instance, being a victim of bullying harms students' psychosocial development (Andreou, Didaskalou and Vlachou, 2015; Rose, Monda-Amaya and Espelage, 2011). At the same time, several studies suggest that a positive classroom climate is beneficial for students' well-being and health. For example, Rathmann et al., (2018) indicate that classroom climate is associated with students' life-satisfaction.

### **Predictors of classroom behavioural climate**

It is well known that boys show more negative behaviour compared with girls, for example in the form of physically aggressive behaviour (Lansford et al., 2012) or more non-compliant classroom behaviour than girls (Schwab, Eckstein, and Reusser, 2019). However, there is a lack of research regarding the question if boys perceive more negative behaviour of peers compared with girls. Some studies found evidence that girls perceive the disciplinary climate in class more positive than boys (Koth, Bradshaw and Leaf, 2008). Some other studies, however, found no gender difference in the perceived classroom climate. For example, in the study of Dursley and Betts (2015), there are no gender differences in the perceptions of the seriousness of disruptive behaviours. In a study by Persson and Svensson (2017), girls characterised the classroom climate as messier and disorderly compared with boys. This is in line with the results of Sortkær and Reimer (2018) showing evidence for students from five different countries that girls perceive the disciplinary climate in class less positively than boys.

Next to gender, students' age/school grades might also influence CBC. According to the results of Kaufman et al., (2019), students from lower grades show less negative behaviour compared with students from higher grades. Dursley and Betts (2015) show that students in the elementary school (aged 9–11 years) perceived disruptive classroom behaviours more serious than students in middle school (aged 11–13 years). Bru (2006) found that grade 9 students (secondary school) reported more disrespectful and disruptive behaviour than grade 6 students (primary school).

Research involving students with SEN reveals that students with SEN show a higher level of negative behaviour than students without SEN (Schwab, 2014; Mand, 2007). Furthermore, students with SEN perceive more negative behaviour of peers (e.g. they are more often victimised) compared with their peers (Schwab, 2014; Farmer et al., 2012; Rose et al., 2013). In addition to this, students with hyperactivity express more negative behaviour than students who are not hyperactive (Schwab et al., 2019; LeBlanc et al., 2008; Wheeler and Carlson, 1994). It has also been demonstrated that there is moderate association between hyperactivity and breaking rules as well as aggressiveness (Wheeler and Carlson, 1994).

Complementary to the individual characteristics of students, factors of the environment also influence CBC. Students who receive more social support and have better social relations in class might perceive a better class climate. In this vein, studies revealed that behavioural problems are linked with the poorer relationship between teachers and students (Al-Yagon and Mikulincer, 2004; Baker, Grant and Morlock, 2008; Henricsson and Rydell, 2004; Meehan, Hughes and Cavell, 2003; Murray and Murray, 2004). Further, a more positive teacher-student relationship leads to less deviant behaviour of students (Schwab et al., 2019). In the studies on students' perceptions on classroom management, three aspects of good teacher quality were constantly identified (Woolfolk Hoy and Weinstein, 2011). Students value teachers establishing positive relations with the students while exercising authority and using creative pedagogical strategies.

This research is framed within inclusive education. The aim of inclusive education is to perceive all students with their individual abilities and skills, to accept them and to support them. In this mainstream understanding of inclusion, identifying student with special educational needs (SEN) may seem controversial. Diagnosing SEN is seen to impose a negative label on the students with increased risk for social inclusion. However, in some school systems identification may be necessary to allow access to support resources. (Lauchlan, and Boyle, 2007). We recognise this controversiality and that SEN is a non-transparent concept as there are no uniform guidelines or criteria for classifying students as having SEN and, hence, international as well as intra-national comparisons are problematic (Schwab, Kopp-Sixt and Bernat., 2015). However, we wish at the same time to recognise that problematic behaviour and related negative classroom behavioural climate are a major challenge for inclusion and building truly inclusive educational systems requires new measures to solve these challenges.

### **Research question**

In previous studies, the students' perspective on CBC has been largely ignored, and the possible differences of different kinds of students in the perceptions of behavioural climate are largely unknown. From the perspective of

inclusive education, it is of utmost importance to find out how students themselves see their classroom behavioural climate, which is one important indicator of the actual learning conditions in a classroom. Consequently, this study aims to determine factors that are associated with the lower secondary grade students' perception of CBC. Using the CBC scale with its four subscales (students' possibilities to study and concentrating on teaching; disruptive behaviour; physical and psychological safety; and caring for the physical environment), the following research questions about group differences will be examined:

- Do students from different school tracks differ in their perception of their CBC?
- Do boys and girls differ in their perception of their CBC?
- Do students with and without SEN differ in their perception of their CBC?
- Do students with and without hyperactivity differ in their perception of their CBC?
- Do students with and without conduct problems differ in their perception of their CBC?
- Do students from different grades differ in their perception of their CBC?

In addition, the relationship between teaching experience as well as class behaviour problems (hyperactivity & conduct problems) and the CBC will be investigated.

Finally, correlations between CBC and students' social inclusion as well as the inclusion climate will be calculated to report on possible outcomes of CBC.

## Methodology

### Participants

Since Germany is a federally organised country (16 federal states), each federal state is responsible for converting the CRPD into valid law and adapting its school systems accordingly. In North Rhine-Westphalia (NRW), a federal state of Germany, such a law came into force on the 1st of August 2014 which states that joint learning of students with and without SEN will become the standard case (Ministerium für Schule und Bildung des Landes Nordrhein-Westfalen, 2013). Therefore, regular schools are faced with the challenge of meeting the new requirements. This is especially difficult for lower secondary schools, as the Federal Republic of Germany has a selective school system which aims to achieve the greatest possible homogeneity by requiring students to choose between different types of schools after primary school (4th grade) according to their academic performance (Blanck, Edelstein and Powell, 2013). The school types vary both in their duration and in their performance requirements. Consequently, they prepare students for different pathways from higher education to vocational education (Döbert, 2002). The selective school system aims

to create groups that are as homogeneous as possible so that schooling can be as uniform as possible (Blanck et al., 2013). Statistical analyses show that more and more schools, even at the lower secondary level, are educating students with SEN (Kemper et al., 2019; Klemm, 2014, 2015). Accordingly, in inclusive settings, the teachers are confronted with a comprehensive heterogeneity of the student body and it is important to address all individual needs of the students.

Therefore, the data for this study were collected as part of the cross-sectional study Resources and Efficacy of Inclusive Education in lower secondary schools (RESE) in the autumn of 2017 in Germany. A total of 42 classes (in which at least one student with SEN was taught) in the 5th to 9th grades from lower secondary schools in North Rhine-Westphalia completed a paper-pencil questionnaire. For the selection of schools and classes, care was taken to ensure that both schools from urban and rural areas with varying socioeconomic status participated.

For this study, the sample consisted of 650 students (52.1% boys and 47.9% girls) of whom 83 (12.9%) were identified as having SEN. 14.3% of the students were 5th graders, 20.9% were 6th graders, 24.6% were 7th graders, 23.5% were 8th graders, and 16.6% were 9th graders. The distribution of students by type of school is as follows: 7.4% attended a general secondary modern school (i.e. Hauptschule), 3.2% community school (i.e. Gemeinschaftsschule), 8.5% a secondary school (i.e. Sekundarschule), 9.8% a comprehensive school (i.e. Gesamtschule), 54% an intermediate secondary modern school (i.e. Realschule) and 17.1% a grammar school (i.e. Gymnasium).

### Instrumentation

*Students' perception of CBC.* The CBC consists of four subscales 'students' possibilities to study and concentrate on teaching' (three items; e.g. 'We can concentrate well on teaching'), 'disruptive behaviour' (three items; e.g. 'We disturb each other in our learning'), 'physical and psychological safety' (three items, e.g. 'We harm other students or threaten to harm others') and 'caring for the physical environment' (two items, e.g. 'We take good care of the classroom equipment'). Students rated the CBC on a four-point Likert scale (1 = Never, 2 = During some lessons, 3 = During most of the lessons and 4 = During all lessons). Adequate reliability was found for the total scale ( $\alpha = .82$ ) as well as for all three of the four subscales: 'students' possibilities to study and concentrate on teaching' ( $\alpha = .75$ ), 'disruptive behaviour' ( $\alpha = .75$ ) and 'physical and psychological safety' ( $\alpha = .72$ ). The subscale, 'caring for physical environment', consists of only two items between which, however, a medium correlation ( $r = .41$ ) could be determined.

*Students' social inclusion.* Social inclusion was assessed using the same-named subscale of the German version of

the Perception of Inclusion Questionnaire – Student Version (PIQ) (Venetz, Zurbriggen, Eckhart, Schwab and Hessel, 2015; Venetz, Zurbriggen and Eckhart, 2014). Within four items (e.g. ‘I have a lot of friends in my class.’), students rated their social inclusion on a four-point Likert scale (1 = not at all true, 2 = somewhat not true, 3 = somewhat true and 4 = certainly true). Venetz et al., (2014), as well as Zurbriggen, Venetz, Schwab and Hessel (2017), have already shown that the psychometric quality of this short scale is high.

**Inclusion climate scale.** The perception of teachers’ support and care was measured using the Inclusion Climate Scale (ICS) (Schwab, Sharma and Loreman, 2018). The scale consists of two subscales (Teacher Support and Care and Emotional Experience) and 14 items. Both subscales have seven items, for example, ‘I receive enough help from teachers if I struggle to do school work’ (Teacher Support and Care) and ‘I enjoy coming to school every day’ (Emotional Experience). The ICS uses a four-point Likert-type rating scale (1 = Not at all true, 2 = Somewhat not true, 3 = Somewhat true and 4 = Certainly true). The total scale and subscales had high-reliability coefficients (Schwab, Sharma and Loreman, 2018).

**SEN.** The status of the students’ SEN was stated by the teachers based on North Rhine-Westphalian legislation. SEN are either learning, sensory disability and/or social and emotional disorders. The largest group of students were diagnosed with learning disabilities. No SEN subgroups were formed because the number of participants with SEN types other than learning disabilities was limited.

**Hyperactivity and conduct problems.** To measure hyperactivity and conduct problems, the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001) subscales of the same name were used. The teachers filled out the SDQ for each student. The SDQ is used as a brief behavioural screening. Besides conduct problems and hyperactivity, it also measures peer relation problems and prosocial behaviour.

**Teaching experience.** Teaching experience is assessed by how many years the teachers have been teaching.

#### Ethics

In order to ensure the ethical safety of the present study, ethical approval was given by the ethics committee of the University of Wuppertal. Participation was voluntary for all participants (school, teachers and students). Written informed consent was obtained from all participants in advance. Since the students were still minors, their parents or guardians were asked for permission in this case. All participants were allowed to ask questions at all times. Furthermore, they were free to withdraw their consent at any time during the study. In case of withdrawal

of consent, all data were immediately removed from the data set. The protection of anonymity was a top priority in this study. Accordingly, all names were replaced by numerical codes.

## Results

### *Descriptive results and differences between students from different tracks*

Table 1 gives an overview of the mean scores of all subscales. Related to the theoretical mean of the scales ( $M = 2.5$ ) for three out of the four subscales students’ ratings are close to it. Only for students’ ratings of ‘physical and psychological safety’, the empirical mean was above the theoretical mean of the scale.

Further, a multivariate analysis of variance for all four subscales as dependent variables and the school track as an independent variable was calculated with SEN and the SES as control variables. The results indicate significant differences in the CBC ( $F_{5,596} = 7.43$ ,  $P < .01$ ,  $\text{Eta}^2 = .06$ ). Univariate analyses show significant difference between different school tracks in three subscales (students’ possibilities to study and concentrating on teaching:  $F_{5,596} = 2.66$ ,  $P < .05$ ,  $\text{Eta}^2 = .02$ , physical and psychological safety:  $F_{5,596} = 3.88$ ,  $P < .01$ ,  $\text{Eta}^2 = .03$ , caring for the physical environment:  $F_{5,596} = 6.54$ ,  $P < .01$ ,  $\text{Eta}^2 = .05$ ). For disruptive behaviour, no significant effect was found ( $F_{5,596} = 1.24$ , n.s.). Pairwise comparisons indicate that students from Gesamtschule perceived less ‘physical and psychological safety’ compared with students from Realschule ( $P < .05$ ) and students from Gymnasium ( $P < .01$ ). In addition, students from Gesamtschule perceive less ‘caring for the physical environment’ compared with students from Gymnasium ( $P < .05$ ), Hauptschule ( $P < .01$ ) and Realschule ( $P < .01$ ).

### *Multilevel regression analyses – Predicting Students’ perception of classroom behaviour climate*

First, correlations between the predictors (on students’ level) and the dependent variables were calculated (see Table 2).

The results show rather weak correlations between all CBC subscales and gender. Positive correlations between three (‘students’ possibilities to study and concentrating on teaching’, ‘physical and psychological safety’, ‘caring for physical environment’) of the four subscales and gender were found. Compared to boys, girls show higher values in terms of ‘students’ possibilities to study and concentrate on teaching’, ‘physical and psychological safety’ and ‘caring for the physical environment’. Boys, on the other hand, notice more disruptive behaviour in class than girls.

For the relationship between SEN and the subscales of the CBC, significant but weak correlations were found for

**Table 1: Means and standard deviations for CBC subscale scores**

	Students' possibilities to study and concentrating on teaching M (SD)	Disruptive behaviour M (SD)	Physical and psychological safety M (SD)	Caring for the physical environment M (SD)
Total sample (N = 650)	2.54 (0.64)	2.23 (0.68)	3.36 (0.67)	2.80 (0.80)
Boys (N = 333)	2.49 (0.66)	2.32 (0.70)	3.20 (0.74)	2.73 (0.81)
Girls (N = 306)	2.59 (0.61)	2.15 (0.65)	3.52 (0.55)	2.87 (0.79)
Students without SEN (N = 559)	2.55 (0.62)	2.19 (0.66)	3.41 (0.63)	2.84 (0.76)
Students with SEN (N = 83)	2.49 (0.73)	2.48 (0.73)	3.04 (0.82)	2.56 (1.02)
Students in Hauptschule (N = 48)	2.53 (0.66)	2.34 (0.65)	3.18 (0.75)	2.97 (0.75)
Students in Realschule (N = 351)	2.63 (0.63)	2.19 (0.78)	3.40 (0.70)	2.92 (0.78)
Students in Sekundarschule (N = 55)	2.44 (0.60)	2.32 (0.60)	3.30 (0.62)	2.67 (0.86)
Students in Gymnasium (N = 111)	2.47 (0.64)	2.19 (0.72)	3.52 (0.52)	2.74 (0.72)
Students in Gesamtschule (N = 64)	2.35 (0.68)	2.43 (0.79)	3.08 (0.67)	2.29 (0.89)
Students in Gemeinschaftsschule (N = 21)	2.40 (0.51)	2.10 (0.55)	3.21 (0.53)	2.65 (0.73)
5th graders (N = 93)	2.65 (0.74)	2.27 (0.71)	3.41 (0.72)	3.11 (0.81)
6th graders (N = 136)	2.51 (0.67)	2.28 (0.64)	3.37 (0.71)	2.89 (0.78)
7th graders (N = 160)	2.46 (0.63)	2.32 (0.70)	3.40 (0.61)	2.81 (0.84)
8th graders (N = 153)	2.49 (0.53)	2.21 (0.65)	3.24 (0.64)	2.65 (0.77)
9th graders (N = 108)	2.71 (0.63)	2.03 (0.68)	3.40 (0.69)	2.62 (0.73)

**Table 2: Correlations between the CBC subscale scores and gender, SEN status, hyperactivity and conduct problems**

	Students' possibilities to study and concentrating on teaching	Disruptive behaviour	Physical and psychological safety	Caring for the physical environment
Gender	.08*	-.13**	.24**	.09*
SEN	-.03	.14**	-.18**	-.12**
Hyperactivity	-.14**	.02	-.05	-.06
Conduct problems	-.17**	.05	-.12*	-.16**

\*P < .05, \*\*P < .01.

three of the four subscales. The results reveal that students with SEN rate 'disruptive behaviour' in the classroom higher than students without SEN, while students without SEN rate 'physical and psychological safety' and 'caring for the physical environment' higher than students with SEN. With regard to the predictor 'hyperactivity', only a weak negative correlation with the subscale 'students' possibilities to study and concentrating on teaching' could be identified. Students with lower levels of 'hyperactivity' rated higher 'students' possibilities to study and concentrate on teaching'. Significant negative

correlations were detected between the predictor 'conduct problems' and three subscales of the CBC. Students with fewer conduct problems show higher values for 'students' possibilities to study and concentrate on teaching', 'physical and psychological safety' and 'caring for the physical environment'.

To take the hierarchical structure of the data into account (students are nested into classes), multi-level-regression analyses were calculated. All metric variables were z-standardised for these analyses. First, empty models

(without predictors) were calculated to estimate the variance on the class level. For all four subscales, the significant variance on the class level was found (see Table 3). The amount of variance on class level varies between 7% and 15%.

Next, all subscales models with predictors on students' and class levels were calculated. For all four subscales, having SEN, hyperactivity, conduct problems, grade level and teaching experience do not significantly predict CBC (see Tables 4–7). For 'physical and psychological safety', the results show that girls perceive a higher level compared with boys ( $t_{420.72} = 3.34, P < .01$ ).

#### *Correlations – Outcomes of classroom behavioural climate*

'Social inclusion' is positively and significantly related to the subscales 'students' possibilities to study and concentrate on teaching', 'physical and psychological safety' and 'caring for the physical environment'. There is a negative significant correlation between 'social inclusion' and 'disruptive behaviour'. Furthermore, there are positively significant correlations between 'emotional experiences' and the three subscales ('students' possibilities to study and concentrating on teaching', 'physical and psychological safety' and 'caring for the physical environment'). The same applies to teacher support and care and the three subscales mentioned in the previous sentence (see Table 8).

#### **Discussion**

The main goal of the current study was to examine students' perceptions of CBC. Further predictors of CBC, as well as associated variables, were identified.

First of all, students' average rating was close to the arithmetic average of the range of response options given students rated the CBC as between some and most lessons average, except with regards to 'physical and psychological safety' which were perceived as rather high.

**Table 3: Estimates of the multi-level regression analyses to predict CBC (models without predictors)**

	Variance on student level	Variance on class level	Deviance
Students' possibilities to study and concentrating on teaching	.93**	.07*	1829.97
Disruptive behaviour	.88**	.12**	1802.42
Physical and psychological safety	.87**	.13**	1784.67
Caring for the physical environment	.85**	.15**	1778.79

\* $P < .05$ , \*\* $P < .01$ .

**Table 4: Estimates of the multi-level regression analyses to predict 'students' possibilities to study and concentrating on teaching' (model with predictors)**

	$\beta$	SE
<b>Student-level</b>		
Gender	0.03	0.10
SEN	0.02	0.13
Conduct Problems	-0.07	0.06
Hyperactivity	-0.10	0.06
<b>Class-level</b>		
Grade level	-0.03	0.06
Teaching experience	0.11	0.07
Conduct Disorders (class mean)	-0.03	0.26
Hyperactivity (class mean)	0.00	0.02
<b>Residual variance</b>		
Student-level	.91**	.06
Class-level	.03	.02
Deviance	1224.01	

\* $P < .05$ , \*\* $P < .01$ .

**Table 5: Estimates of the multi-level regression analyses to predict 'disruptive behaviour' (model with predictors)**

	$\beta$	SE
<b>Student-level</b>		
Gender	-0.12	0.10
SEN	0.25	0.13
Conduct Problems	0.02	0.07
Hyperactivity	-0.04	0.06
<b>Class-level</b>		
Grade level	-0.04	0.07
Teaching experience	-0.12	0.08
Conduct Disorders (class mean)	0.31	0.30
Hyperactivity (class mean)	-0.02	0.02
<b>Residual variance</b>		
Student-level	.92**	.06
Class-level	.05	.03
Deviance	1238.05	

\* $P < .05$ , \*\* $P < .01$ .

Group comparisons between students from different school tracks indicate that the school matters. The results show that students of Gesamtschule perceived less 'physical and psychological safety' compared with students from Realschule and students from Gymnasium. The same applies to 'caring for the physical environment', but here, it also applies to the comparison between Gesamtschule and Hauptschule. This is an interesting result as the Hauptschule, Realschule and Gymnasium are rather homogeneous school types in the German

**Table 6: Estimates of the multi-level regression analyses to predict ‘physical and psychological safety’ (model with predictors)**

	$\beta$	SE
Student-level		
Gender	0.32**	0.10
SEN	-0.19	0.13
Conduct Problems	-0.09	0.07
Hyperactivity	0.10	0.06
Class-level	0.02	0.08
Grade level	-0.04	0.08
Teaching experience	-0.58	0.34
Conduct Disorders (class mean)	0.00	0.02
Hyperactivity (class mean)	0.02	0.08
Residual variance		
Student-level	.88**	.06
Class-level	.08*	.04
Deviance	1216.67	

\* $P < .05$ , \*\* $P < .01$ .

**Table 7: Estimates of the multi-level regression analyses to predict ‘caring for the physical environment’ (model with predictors)**

	$\beta$	SE
Student-level		
Gender	0.06	0.10
SEN	-0.22	0.13
Conduct Problems	-0.12	0.07
Hyperactivity	0.08	0.06
Class-level		
Grade level	-0.16	0.08
Teaching experience	0.04	0.09
Conduct Disorders (class mean)	-0.53	0.34
Hyperactivity (class mean)	0.01	0.02
Residual variance		
Student-level	.88**	.06
Class-level	.08	.04
Deviance	1211.31	

\* $P < .05$ , \*\* $P < .01$ .

education system, whereas the Gesamtschule combines these three educational paths and, accordingly, has a very heterogeneous student body. Therefore, these results underpin that in more heterogeneous classes, students perceive a less positive CBC. A possible explanation might be that in classes with high heterogeneity, teachers are less able to respond to individual students' needs and to manage students' behaviour. This indicates that including diverse students into the same schools and classes increases the demands for the actions to support CBC.

Consequently, classroom management should be stressed in teacher training.

Results of further analyses gave evidence for a gender effect indicating that girls perceive the CBC more positive than boys. This is in line with Koth, Bradshaw and Leaf (2008), but contrary to the study of Persson and Svensson (2017) as well as to the study of Sortkær and Reimer (2018). For students with SEN, it was shown that they experience a less positive CBC. On the one hand, they rated 'disruptive behaviour' higher and on the other hand, 'physical and psychological safety' as well as 'caring for the physical environment' lower. Maybe students with SEN need a more positive environment to learn as it will help them perceive the same level of 'disruptive behaviour' as a stronger disruption compared with students without SEN. Similarly, they might have a bigger need for 'caring for the physical environment' and 'physical and psychological safety' and, therefore, they have rated these two subscales a bit lower compared with their peers without SEN. To get a deeper insight into this phenomenon, it would be interesting for future studies to interview students to get more information, if the results might be based on response bias (that students with SEN perceive similar behaviour more negative) or if there is a difference in being a victim of negative class behaviour.

Also, for students with behaviour problems, evidence was found that they perceive the CBC differently compared with their peers. The higher the 'hyperactivity' the less 'students' possibilities to study and concentrate on teaching' was perceived. For conduct problems, in addition to 'students' possibilities to study and concentrate on teaching' also correlations with 'physical and psychological safety' and 'caring for the physical environment' were found.

Summarising the findings on students with SEN and students' scores on the SDQ scales of hyperactivity and conduct problems, we found that these students experience poorer classroom behavioural climate than other students. Therefore, we may raise the question whether having special educational needs, hyperactivity or conduct problems is not only related to poorer CBC, as indicated by earlier studies (Schwab, 2014; Farmer et al., 2012; LeBlanc et al., 2008; Wheeler and Carlson, 1994) but also a risk for individual students to suffer more of problems in behavioural climate. This observation highlights the need to tackle classroom behavioural climate issues as one measure in moving towards more inclusive education.

Focussing on the results of the multi-level regression analyses, a relatively low variance of CBC on class level (7–15%) was identified which suggests that there are not very big differences in the perception of CBC between different classrooms. Of course, variance in students' perceptions was expected, however, that it is as high as 93% indicates that students' perception of CBC is quite strongly individual students' perception and that students

**Table 8: Correlations between the CBC subscale scores and social inclusion, emotional experiences as well as teacher support and care**

	Students' possibilities to study and concentrating on teaching	Disruptive behaviour	Physical and psychological safety	Caring for the physical environment
Social inclusion	.25**	-.26**	.32**	.28**
Emotional experiences	.27**	-.06	.12**	.28**
Teacher support and care	.30**	-.07	.15**	.36**

\* $P < .05$ , \*\* $P < .01$ .

see the CBC in the same class in very different ways. Further, significant predictors were found only for 'physical and psychological safety'. The first major result is that girls perceive a higher level compared with boys. This goes hand in hand with the results of Lansford et al., (2012) and Schwab et al., (2019). In summary, experiencing CBC seems to be largely an individual's personal experience which has relatively small correlations to gender, SEN status, student hyperactivity symptoms or conduct disorders. While some correlations were found at the individual level, these relationships were not significant when the nested nature of the data (students nested within classes) was taken into account and several predictors were considered simultaneously.

The final correlation analyses gave important information about the links between CBC and social relations (social inclusion, Teacher Support and Care) and school well-being. These results show that the more positive the feeling of social inclusion in a classroom is, the more positive the CBC in all the four sub-domain. Additionally, positive correlations with 'emotional experiences' and 'teacher support and care' and the three subscales ('students' possibilities to study and concentrate on teaching', 'physical and psychological safety', and 'caring for the physical environment') highlight the importance of CBC for student well-being. These results further underline the importance of a positive behavioural climate for the successful implementation of inclusion in schools.

Finally, there are some limitations that have to be considered when interpreting the results of the present study. First, originally, the psychometric quality of the subscales was not good as a result of which it was necessary to remove items to improve the quality. Therefore, it is no longer comparable with the original scales. Second, only cross-sectional data were used, consequently, we cannot assume that the effects found would be causal even if they suggest interesting relationships between variables that call for testing in longitudinal data in the future.

### Conclusion

The results of the current study indicated that a positive CBC is extremely important in the context of inclusive education to ensure successful implementation in the

context of mainstream schools. First, it is known that interruptions to learning due to disruptions caused by poor classroom behavioural climate are a clear barrier to learning and obstacle in enacting inclusive education. On the other hand, the differences in the experiences between students with SEN and other highlight the need to improve CBC to create more equitable learning conditions for all. The nature of behavioural climate as a relatively individual experience underlines the importance of developing classrooms that are ready to meet the individual needs of students. For example, while some students are not bothered by disruptions (reporting low disruptions), others may feel that their learning environment is disruptive. An interesting contribution to the field is the initial low but negative correlations between hyperactivity and conduct disorders and students feeling that the learning environment gives possibilities to concentrate on learning warrant further studies to look more closely at this relationship. Perhaps, students with ADHD or behaviour problems may be victims of bad behavioural climate in addition to being a likely cause for disruptions. Finally, the association between students' school well-being and CBC suggests that paying special attention to improving CBC is important in developing more inclusive learning environments. Taking into account that classroom disruptions are reported to be a major teachers' stress, this suggests that any programmes developing inclusive education services or pedagogy should take improving teachers' classroom management skills seriously. Teachers are the key actors in the implementation of inclusive education, and their role is central in creating conducive learning conditions and possibilities of positive social relationships in classrooms of diverse students.

The present study highlights the particular importance of a positive CBC for the successful implementation of inclusive education. While diversity in classrooms is a challenge for behavioural climate, poor behavioural climate may also pose specific barriers to learning for some students with disabilities or SEN and thus is a general challenge for equity in inclusive classrooms. This study shows some indications that new measures to enhance inclusive education by paying specific attention to improving classroom behavioural climate may be important and require policy support in the form of financial

and human resources, including developing teacher education. Finally, our study suggests that further research on behavioural climate in inclusive classes is necessary in order to develop antecedent measures that teachers can use to improve behavioural climate and to continuously explore possible student-oriented prevention and intervention measures for practice.

### Conflict of Interests

The authors declare that they have no conflict of interests.

### Data Availability Statement

Due to ethical reasons, the data are not publicly available.

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### References

- Al-Yagon, M. & Mikulincer, M. (2004) 'Socioemotional and academic adjustment among children with learning disorders: The mediational role of attachment-based factors.' *Journal of Special Education*, 38, pp. 111–23.
- Andreou, E., Didaskalou, E. & Vlachou, A. (2015) 'Bully/victim problems among Greek pupils with special educational needs: associations with loneliness and self-efficacy for peer interactions.' *Journal of Research in Special Educational Needs*, 15 (4), pp. 235–46.
- Baker, J. A., Grant, S. & Morlock, L. (2008) 'The teacher-student relationship as a developmental context for children with internalizing or externalizing behavior problems.' *School Psychology Quarterly*, 23, pp. 3–15.
- Blanck, J. M., Edelstein, B. & Powell, J. J. W. (2013) 'Persistente schulische Segregation oder Wandel zur inklusiven Bildung? Die Bedeutung der UN-Behindertenrechtskonvention für Reformprozesse in den deutschen Bundesländern.' *Zeitschrift für Soziologie*, 39 (5), pp. 267–92.
- Bru, E. (2006) 'Factors associated with disruptive behaviour in the classroom.' *Scandinavian Journal of Educational Research*, 50 (1), pp. 23–43. <https://doi.org/10.1080/00313830500372000>
- Döbert, H. (ed.) (2002) 'Deutschland.' In H. Döbert, W. Hörner, B. von Kopp & W. Mitter (eds), *Die Schulsysteme Europas. Albanien, Andorra, Armenien, Belgien, Bosnien-Herzegowina, Bulgarien, Dänemark, Deutschland, England und Wales, Estland, Färöer-Inseln, Finnland, Frankreich, Georgien, Griechenland, Irland, Island, Italien, Kroatien, Lettland, Liechtenstein, Litauen, Luxemburg, Malta, Makedonien, Moldawien, Monaco, Niederlande, Norwegen, Österreich, Polen, Portugal, Rumänien, Russische Föderation, San Marino, Schweden, Schweiz, Serbien, Slowakische Republik, Slowenien, Spanien, Tschechische Republik, Türkei, Ukraine, Ungarn, Weißrussland, Zypern*, pp. 92–114. Baltmannsweiler: Schneider Hohengehren.
- Dursley, L. & Betts, L. (2015) 'Exploring children's perceptions of the perceived seriousness of disruptive classroom behaviours.' *Educational Psychology*, 35 (4), pp. 416–29. <https://doi.org/10.1080/01443410.2014.907556>
- Eckstein, B., Grob, U. & Reusser, K. (2016) 'Unterrichtliche Devianz und subjektives Störungsempfinden. Entwicklung eines Instrumentariums zur Erfassung von Unterrichtsstörungen.' *Empirische Pädagogik*, 30 (1), pp. 113–29.
- Farmer, T. W., Petrin, R., Brooks, D. S., Hamm, J. V., Lambert, K. & Gravelle, M. (2012) 'Bullying involvement and the school adjustment of rural students with and without disabilities.' *Journal of Emotional and Behavioral Disorders*, 20 (1), pp. 19–37. <https://doi.org/10.1177/1063426610392039>
- Goodman, R. (2001) 'Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ).' *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, pp. 1337–45.
- Hattie, J. A. (ed.) (2009) *Visible Learning: A Synthesis of over 800 Meta-analyses Relating to Achievement*. Abingdon: Routledge.
- Henricsson, L. & Rydell, A. (2004) 'Elementary school children with behavior problems: Teacher child relations and self-perception. A prospective study.' *Merrill-Palmer Quarterly*, 50, pp. 111–38.
- Kaufman, J. S., Jaser, S. S., Vaughn, E. L., Reynolds, J. S., Di Donato, J., Bernard, S. N. & Hernandez-Brereton, M. (2019) 'Patterns in office referral data by grade, race/ethnicity, and gender.' *Journal of Positive Behavior Interventions*, 12 (1), pp. 44–54. <https://doi.org/10.1177/1098300708329710>
- Kemper, T. & Goldan, J. (eds.) (2019) 'Analysen zur Entwicklung der schulischen Inklusion. Potenziale von Daten der amtlichen Schulstatistik am Beispiel von Nordrhein-Westfalen.' In D. Fickermann & H. Weishaupt (eds), *Bildungsforschung mit Daten der amtlichen Statistik*, pp. 234–50. Münster & New York: Waxmann.
- Klassen, R. M. & Chiu, M. M. (2010) 'Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress.' *Journal of Educational Psychology*, 102 (3), pp. 741–56. <https://doi.org/10.1037/a0019237>
- Klemm, K. (2014) 'Auf dem Weg zur inklusiven Schule: Versuch einer bildungsstatistischen Zwischenbilanz.'

- Zeitschrift für Erziehungswissenschaft*, 17 (4), pp. 625–37.
- Klemm, K. (2015) ‘Inklusion in Deutschland – Daten und Fakten.’ Bertelsmann Stiftung <<https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/inklusion-in-deutschland-1/>> (accessed 27 October 2020).
- Koth, C. W., Bradshaw, C. P. & Leaf, P. J. (2008) ‘A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors.’ *Journal of Educational Psychology*, 100 (1), pp. 96–104.
- Lansford, J. E., Skinner, A. T., Sorbring, E., Di Giunta, L., Deater-Deckard, K., Dodge, K. A. & Chang, L. (2012) ‘Boys’ and girls’ relational and physical aggression in nine countries.’ *Aggressive Behavior*, 38 (4), pp. 298–308.
- Lauchlan, F. & Boyle, C. (2007) ‘Is the use of labels in special education helpful?’ *Support for Learning*, 22, pp. 36–42.
- LeBlanc, L., Swisher, R., Vitaro, F. & Tremblay, R. E. (2008) ‘High school social climate and antisocial behavior: a 10 year longitudinal and multilevel study.’ *Journal of Research on Adolescence*, 18 (3), pp. 395–419.
- Leidig, T. & Pössinger, M. (eds.) (2017) ‘Classroom Management – Eine zentrale Gelingensbedingung für Lernen und Lehren in der Inklusion.’ In M. Dziak-Mahler, T. Hennemann, S. Jaster, T. Leidig & J. Springob (eds), *Fachdidaktik inklusiv II. (Fach-)Unterricht inklusiv gestalten – Theoretische Annäherungen und praktische Umsetzungen*, pp. 43–62. Münster: Waxmann.
- Levin, J. & J. F. Nolan (eds) (2010) *Principles of Classroom Management Professional Decision-making Model*. (6th edn). Boston, MA: Allyn & Bacon.
- Mand, J. (2007) ‘Social position of special needs pupils in the classroom: a comparison between German special schools for pupils with learning difficulties and integrated primary school classes.’ *European Journal of Special Needs Education*, 22, pp. 7–14. <https://doi.org/10.1080/08856250601082182>
- Meehan, B. T., Hughes, J. N. & Cavell, T. A. (2003) ‘Student-teacher relationships as compensatory resources for aggressive children.’ *Child Development*, 74, pp. 1145–57.
- Ministerium für Schule und Bildung des Landes Nordrhein-Westfalen (2013) ‘9. Schulrechtsänderungsgesetz zur Umsetzung der VN-Behindertenrechtskonvention.’ <<https://www.schulministerium.nrw.de/docs/Schulsystem/Inklusion/Lehrkraefte/Recht/NeuntesSchulrechtsaenderungsgesetz.pdf>> (accessed 27 October 2020).
- Murray, C. & Murray, K. M. (2004) ‘Child Level Correlates of Teacher-Student Relationships: An Examination of Demographic Characteristics, Academic Orientations, and Behavioral Orientations.’ *Psychology in the Schools*, 41(7), 751–762. <https://doi.org/10.1002/pits.20015>
- Närhi V., Kiiski T., Peitso S., Savolainen H. (2015) ‘Reducing disruptive behaviours and improving learning climates with class-wide positive behaviour support in middle schools.’ *European Journal of Special Needs Education*, 30(2), pp. 274–285. <http://dx.doi.org/10.1080/08856257.2014.986913>
- Närhi V., Kiiski T. & Savolainen H. (2017) ‘Reducing disruptive behaviours and improving classroom behavioural climate with class-wide positive behaviour support in middle schools.’ *British Educational Research Journal*, 43 (6), pp. 1186–1205. <http://dx.doi.org/10.1080/berj.3305>
- Persson, L. & Svensson, M. (2017) ‘Classmate characteristics, class composition and children’s perceived classroom climate.’ *Journal of Public Health*, 25 (5), pp. 473–80.
- Rathmann, K., Herke, M. G., Hurrelmann, K. & Richter, M. (2018) ‘Perceived Class climate and school-aged children’s life satisfaction: The role of the learning environment in classrooms.’ *PLoS One*, 13 (2), pp. e0189335. <https://doi.org/10.1371/journal.pone.0189335>
- Rose, C. A., Forber-Pratt, A. J., Espelage, D. L. & Aragon, S. R. (2013) ‘The influence of psychosocial factors on bullying involvement of students with disabilities.’ *Theory Into Practice*, 52 (4), pp. 272–9. <https://doi.org/10.1080/00405841.2013.829730>
- Rose, C. A., Monda-Amaya, L. E. & Espelage, D. L. (2011) ‘Bullying perpetration and victimization in special education: A review of the literature.’ *Remedial and Special Education*, 32 (2), pp. 114–30. <https://doi.org/10.1177/0741932510361247>
- Scheerens, J., Witziers, B. & Steen, R. (2013) ‘A meta-analysis of school effectiveness studies.’ *Revista de Educacion*, 361, pp. 619–45. <https://doi.org/10.4438/1988-592X-RE-2013-361-235>
- Schwab S. (2014). *Schulische Integration, soziale Partizipation und emotionales Wohlbefinden in der Schule. Ergebnisse einer empirischen Längsschnittstudie*. Wien: Lit. Verlag.
- Schwab S. (2018). *Attitudes towards inclusive schooling. A study on students’, teachers’ and parents’ attitudes*. Münster: Waxmann Verlag.
- Schwab S., Eckstein B. & Reusser K. (2019) ‘Predictors of non-compliant classroom behaviour of secondary school students. Identifying the influence of sex, learning problems, behaviour problems, social behaviour, peer relations and student-teacher relations.’ *Journal of Research in Special Educational Needs*, 19 (3), pp. 220–231. <http://dx.doi.org/10.1111/1471-3802.12444>
- Schwab S., Kopp-Sixt S. & Bernat E. (2015) ‘Kritische Einblicke in die Gutachtererstellung zum sonderpädagogischen Förderbedarf in Österreich.’ *Heilpädagogische Forschung*, 41(3), pp. 136–141.

- Schwab S., Sharma U. & Loreman T. (2018) 'Are we included? Secondary students' perception of inclusion climate in their schools.' *Teaching and Teacher Education*, 75, pp. 31–39. <http://dx.doi.org/10.1016/j.tate.2018.05.016>
- Sortkær, B. & Reimer, D. (2018) 'Classroom disciplinary climate of schools and gender – evidence from the Nordic countries.' *School Effectiveness and School Improvement*, 29 (4), pp. 511–28.
- Spilt, J. L. & Koomen, H. M. Y. (2009) 'Widening the view on teacher-child relationships: Teachers' narratives concerning disruptive versus non-disruptive children.' *School Psychology Review*, 38, pp. 86–101.
- United Nations (ed) (2006) *Convention on the Rights of Persons with Disabilities and Optional Protocol*. New York: United Nations.
- Venetz, M., Zurbriggen, C. & Eckhart, M. (2014) 'Entwicklung und erste Validierung einer Kurzversion des Fragebogens zur Erfassung von Dimensionen der Integration von Schülern (FDI 4–6) von Haeberlin, Moser, Bless & Klaghöfer.' *Empirische Sonderpädagogik*, 6 (2), pp. 99–113.
- Venetz, M., Zurbriggen, C. L. A., Eckhart, M., Schwab, S. & Hessels, M. G. P. (2015) 'The Perceptions of Inclusion Questionnaire (PIQ).' Deutsche Version <https://piqinfo.ch/wp-content/uploads/2019/08/piq-deutsch.pdf> (accessed 27 October 2020).
- Wheeler, J. & Carlson, C. L. (1994) 'The social functioning of children with ADD with hyperactivity and ADD without hyperactivity: a comparison of their peer relations and social deficits.' *Journal of Emotional and Behavioral Disorders*, 2, pp. 2–12.
- Woolfolk Hoy, A. & Weinstein, C. S. (eds.) (2011) 'Student and teacher perspectives on classroom management.' In C. M. Evertson & C. S. Weinstein (eds), *Handbook of Classroom Management: Research, Practice, and Contemporary Issues*, pp. 181–222. New York and London: Routledge.
- Zurbriggen C. L. A., Venetz M., Schwab S. & Hessels M. G. P. (2017) 'A psychometric analysis of the student version of the Perceptions of Inclusion Questionnaire (PIQ).' *European Journal of Psychological Assessment*, pp. 1–9. <https://doi.org/10.1027/1015-5759/a000443>