Learning Environ Res (2019) 22:101–116
https://doi.org/10.1007/s10984-018-9269-x

ORIGINAL PAPER

Classroom disruptions, the teacher–student relationship and classroom management from the perspective of teachers, students and external observers: a multimethod approach

Marion Scherzinger[1] · **Alexander Wettstein**[1]

Received: 1 June 2017 / Accepted: 30 May 2018 / Published online: 6 June 2018

Abstract This study used questionnaires and systematic behavioural observations to examine how teachers, students and external observers perceived classroom disruptions, the teacher–student relationship and classroom management in grade 5 and 6 classrooms in Switzerland. The questionnaire showed that the students of a class agreed to a certain extent in their ratings of classroom disruptions, the teacher–student relationship and classroom management. Comparison of teachers' and students' ratings showed that agreement on these constructs varied. We found weak to moderate agreement on classroom disruptions, a weak correspondence for the teacher–student relationship, and no association on classroom management. The results of the behavioural observation showed a moderate agreement between external observers' and students' ratings, but no association between external observers' and class teachers' ratings and only a weak correspondence with the subject teacher ratings. Thus external observers' low-inference observations corresponded far better with students' than teachers' ratings. To sum up, students, teachers and observers perceive classroom processes differently.

Keywords Classroom disruptions · Classroom management · Classroom observation techniques · Ratings · Student and teacher perceptions · Teacher–student relationship

Introduction

Commonly-used methods of classroom research involve teachers' self-reports, students' self-reports or external observations. This study combined these three perspectives in a comprehensive framework, aiming to draw conclusions from their comparison. While the study focused on classroom disruptions, we also considered classroom management and the teacher–student relationship because effective classroom management and a good

✉ Marion Scherzinger
marion.scherzinger@phbern.ch

[1] PHBern – University of Teacher Education, Fabrikstrasse 8, 3012 Bern, Switzerland

teacher–student relationship can prevent classroom disruptions (Bear 2015). Classroom management, which refers to the actions of a teacher to create an orderly learning environment that supports learning, includes establishing supportive relationships with students (Bear 2015; Brophy 2006; Evertson and Weinstein 2006). Positive and supportive teacher–student relationships are related to prosocial and responsible behaviour and academic engagement (Wentzel 1998).

Students and teachers are the "central participants in classroom interactions" (Woolfolk Hoy and Weinstein 2006, p. 181). The teacher arranges and creates the learning situation. This offer, of course, must be accepted by students, with the success and effectiveness of instruction thus depending on both parties (Fend 2002).

Teachers and students therefore assume different roles in the classroom setting. Because of their different roles, teachers and students have different experiences, priorities and perspectives in the classroom, and they also might perceive different things as disruptive. The differing perception of these aspects is a result of selective perception and individual emotional, cognitive and social processing. "Fully understanding their perspectives should allow us to create better learning environments for both students and teachers" (Woolfolk Hoy and Weinstein 2006, p. 181). Both teacher and student perspectives provide insight into what happens in the classroom. Furthermore, different researchers have called for classroom diagnoses to account for explicitly different perspectives (teachers', students' and observers') and to focus more strongly on divergences in perspectives to improve teaching and learning (den Brok et al. 2006a; Helmke and Lenske 2013).

The perspective of the teacher

Teachers, with their professional knowledge, training and practice, are skilled in classroom management and instruction. The complexity and simultaneity of the processes taking place in the class, however, make self-assessment difficult. "A correct self-assessment would require one to carry out a continuous monitoring of one's own actions from a meta-level in parallel with the classroom activity; thus one constantly observes and balances one's own behavior and its effects. However, given the complexity of the teaching–learning happenings in the classroom, teachers would be completely overburdened by this" (Helmke et al. 2011, p. 2). Besides, it cannot be ruled out that teachers' judgements are subject to self-serving biases that portray their instruction in a positive light (Wubbels et al. 1992). The complexity and simultaneity of the processes could lead to inadequate responses, such as coercive reactions to student misbehaviour. As "student behavior is not meaningless" (Montuoro and Lewis 2015, p. 358), it is important for teachers to understand why students act as they act. Therefore, it is important to sensitise them to student perceptions of classroom processes such as misbehaviour.

The perspective of the student

The student perspective has numerous benefits. Whereas teachers act under pressure, students have an observational advantage (Lortie 1975). Not only do they have more time to observe ongoing classroom processes, but their judgements are based on a broad base of experiences over many class hours and a variety of teachers. Students are an "excellent source" of information about classroom processes (Montuoro and Lewis 2015, p. 346). In most cases, students' judgements are more consistent with the judgments of external observers than are teachers' judgements (den Brok et al. 2006b). A distinction must be

made between students' shared and individual perceptions. Shared perception reflects a collective perspective, whereas individual perception reflects individual students' perspectives, which can be based on different roles within the class structure, different treatment by the teacher, and learners' personal values, norms and needs.

However, it is conceivable that students could misunderstand a teacher's didactic intentions in their assessment of the teacher's instruction because of their lack of methodological-didactic knowledge (Wagner 2008). Therefore, one might be inclined to doubt students' assessment of instructional quality because of their lack of didactic competence.

The perspective of external observers

Teachers' and students' views of instruction can be supplemented by one more perspective—that of a trained external observer. External observers can compare different classes and make comprehensible judgements guided by rules; they are not involved in the interaction and can therefore take a rather 'objective' external perspective (Praetorius et al. 2012). External observation through video, however, also entails disadvantages. Because it is very time-consuming, most often only a *brief excerpt* of classroom instruction can be observed. Consequently, observation represents just a snapshot of classroom happenings, calling its validity into question. Furthermore, external observers sometimes do not possess important information, especially concerning the relationships between participants of an interaction, and videography can trigger reactivity in teachers and learners. Teachers very likely can strive for better instruction in videographed individual lessons. However, because routine class behaviours can hardly be changed, it can be assumed that observed classroom instruction offers good insights into regular instruction (Praetorius et al. 2012).

Preventing disruptions through classroom management and a good teacher–student relationship

Results of the Teaching and Learning International Survey (TALIS; OECD 2014) showed that, in more than half of participating countries, one in four teachers reported losing at least 30% of lesson time because of classroom disruptions and administrative tasks. In contrast, a positive and respectful classroom climate, relatively free of disruptions, supports student learning (see Vieluf et al. 2012). Such a classroom environment includes supportive teacher–student interactions, good relationships among students, achievement orientation and an orderly learning atmosphere with clear rules.

As classroom disruption is the focus of this study, it is crucial to explain the theoretical interrelatedness of disruption with classroom management and the teacher–student relationship. The aim of classroom management is to maintain order, engagement and cooperation, as well as to develop self-discipline (Bear 2015). Furthermore, in classroom management, the teacher–student relationship is important (Obsuth et al. 2017). "[…D]eveloping warm, close, and supportive relationships is instrumental to both maintaining order and developing self-discipline (as well as in correcting misbehavior)" (Bear 2015, p. 26). The question of *how* a teacher achieves an orderly learning environment "[…] is as important as *whether* a teacher achieves order" (Evertson and Weinstein 2006, p. 4). Effective teachers prevent misbehaviour, elicit compliance and promote self-discipline (Bear 2015).

Classroom disruptions, defined as disturbances to the teaching–learning process (Winkel 2009), can emanate from students, the teacher or external intrusions. On the one hand,

student misbehaviour (e.g. agitation, cutting in, or threatening) not only hampers the effectiveness of teaching, but also decreases the opportunities for the misbehaving students and their classmates to learn. On the other hand, an inadequately-organised lesson or even aggressive behavior by the teacher (e.g. shaming or ridiculing) can equally impair teaching and learning processes. Not all student or teacher disruptions equally interrupt teaching or learning, impair social interactions or affect the teacher–student relationship. Therefore, we distinguish between nonaggressive (e.g. agitation or cutting in) and aggressive disruptions (e.g. threatening, shaming or ridiculing) by students (Crawshaw 2015) and teachers (Krumm and Weiß 2000; Lewis 2001). Aggression is defined as any behaviour intended to harm another person or to destroy property (Bandura 1979). Finally, classroom disruptions as disturbances of the teaching–learning process (Winkel 2009) can extend over the entire methodological-didactic setting and lead to a working atmosphere marked by interruptions, lack of concentration and restlessness (Skiba and Rausch 2006).

Classroom management is broadly defined as "the actions teachers take to create an environment that supports and facilitates both academic and social-emotional learning" (Evertson and Weinstein 2006, p. 4). The concept emphasises prevention through planning and incorporates the essential features of classroom organisation, management and discipline (Emmer and Sabornie 2015). Adaptive *classroom management* comprises effective monitoring, low-threshold interventions and rule clarity, which allow for efficient use of time and increase the amount of actively-used learning time and learning success. Furthermore, classroom management is thought to affect disruptions, because a stimulating, individualising and cognitively-activating lesson is associated with a low frequency of disruptions (Wettstein et al. 2010). Regarding *teacher–student relationships*, successful classroom management also includes "establishing and working within personal relationships with students" (Brophy 2006, p. 18), making it the task of teachers "to develop caring, supportive relationships with and among students" (Evertson and Weinstein 2006, p. 5).

Appropriate *teacher–student relationships* are characterised by a rather high degree of teacher influence on and proximity to students (Wubbels et al. 2006). Regarding their effect on classroom disruptions, we can conclude that a good teacher–student relationship reduces disruptions, such as aggressive student behaviour, and promotes prosocial student behaviour (Obsuth et al. 2017). A good relationship (i.e. one that is caring and supportive) with the teacher also correlates with students' motivation to learn (Wentzel 2010), scholastic performance (Pianta et al. 2003), engagement in academic activities and observance of classroom rules and norms (Wentzel 1998). Good teacher–student relationships even have a favourable effect on the teacher's health (Wubbels et al. 2006).

Studies comparing students' and teachers' perceptions have shown that their agreement can vary in relation to different constructs. Some studies have captured characteristics of the quality of instruction from student and teacher perspectives (Kunter and Baumert 2006; Wagner et al. 2015) or from student, teacher and observer perspectives (Fauth et al. 2014). In these studies, disruptions were identified through the construct of classroom management or discipline problems, and considerable agreement could be identified between teachers' and students' perspectives. Using scales capturing disruptions and discipline problems, significant correlations from 0.45 to 0.69 were found between teachers' and students' ratings. A low correlation was found between student and teacher ratings of instruction (Desimone 2009; Fauth et al. 2014; Kunter and Baumert 2006; OECD 2017; Wagner et al. 2015), as well as between student and teacher ratings of the teacher–student relationship (Murray et al. 2008).

However, to our knowledge, no studies have yet captured the various forms of disruption in addition to the teacher–student relationship and classroom management differentiated by

teacher, student and observer perspectives. Our study contributes to a relatively new area of research into teacher and student perspectives of classroom disruptions, the teacher–student relationship and classroom management.

Studies show that the frequency and forms of classroom disruptions are associated with the teacher's functions, roles and number of hours spent teaching the class. Observational studies (Wettstein 2008) show that, in lessons by teachers primarily responsible for a class ('class teachers'), aggressive behaviour is less frequent than in lessons by specialist teachers ('subject teachers') teaching specific subjects to the class. Moreover, questionnaire-based studies (Hüfner 2003) have shown that subject teachers report more stress because of oppositional behaviour and discipline problems in the classroom than do class teachers.

The present study

In our study, we focused on the fifth and sixth grades, which represent upper-elementary grades in Switzerland, a transitional phase between elementary and secondary school. Whereas students of different academic abilities are educated in the same classroom in elementary schools in Switzerland, secondary schools are structured according to a tracking system (i.e. students of different academic ability are educated in different schools). In upper-elementary grades, students are taught by a class teacher and subject teachers. The class teacher bears the primary responsibility for the class, conducts most of the teaching, introduces classroom rules and is the primary contact person for students, parents and school authorities. Subject teachers, on the other hand, teach one or more specific subjects to the class. Generally, class teachers teach most of the lessons, whereas subject teachers teach only a few lessons to the class.

This study extended previous research by gathering data on disruptions (aggressive and nonaggressive) in the classroom, the teacher–student relationship and classroom management from the point of view of teachers (class teachers and subject teachers), students and external observers through a multimethod approach using questionnaires and observation. The study aimed to investigate how students', teachers' and observers' perspectives converge and diverge in terms of the abovementioned constructs, considering the different roles of class teachers and subject teachers.

Research questions and hypotheses

Students' judgements

- *To what extent do the students of a class agree in their ratings of classroom disruptions, the teacher–student relationship and classroom management?* In order to distinguish students' individual perceptions from students' shared perceptions at the class level, data were examined using multilevel analysis and intraclass correlations were determined. In accordance with prior research, we anticipated that the intraclass correlations in student assessments within classes regarding various items and factors to reach the minimum criterion of 5% (ICC > 0.05; Lüdtke et al. 2009) in order to aggregate student perceptions into class-mean ratings (Hypothesis 1).
- *Do students rate class teachers' instruction more positively than subject teachers' instruction?* As students spend more time with class teachers, we anticipated that they

would rate class teachers' instruction more positively than subject teachers' (Hypothesis 2).

Students' and teachers' judgements

- *Do teachers' and students' ratings of disruptions, the teacher–student relationship and classroom management correspond?* Whereas we anticipated good agreement between students' and teachers' judgements of disruptions, we anticipated far less agreement on the teacher–student relationship and classroom management (Hypothesis 3).

Observers' judgements

- *What forms of disruption, whether caused by students or teachers, can be identified by external observers in class teachers' and subject teachers' classrooms?* We assumed that disruptions would emanate from students as well as from teachers, that they would be more nonaggressive than aggressive, and that more disruptions would occur in subject teachers' classrooms than in class teachers' (Hypothesis 4).

Observer, teacher and student judgements

- *How well do disruptions coded as low-inference by external observers correspond with students' and teacher's disruption ratings?* We anticipated that the systematic observation results would correspond better with students' judgements than teachers' judgements. The highest agreement was anticipated for low-inference classroom characteristics, such as nonaggressive and aggressive student disruptions and methodological-didactic setting disruptions, while far less observer agreement was anticipated on the judgement of high-inference characteristics such as the teacher–student relationship and classroom management (Hypothesis 5).

Method

Design

The study comprised three parts: a questionnaire survey; video observation; and interviews. In this paper, we focus on the questionnaire survey and video observation. For further information about the results of the interviews, see Scherzinger et al. (2017). In the questionnaire survey, 83 fifth- and sixth-grade classes from the German-speaking canton of Bern, Switzerland, participated. For the video observation, we selected 18 classes from the total sample. All teachers and students, as well as their legal representatives, were asked for their consent to the questionnaire survey and videographic study.

Questionnaire survey

In the first part, 1290 students (48.2% girls, $M = 11.47$ years of age, $SD = 0.77$), their class teachers ($N = 83$, 65.1% female, $M = 39.5$ years of age, $SD = 11.78$, $M = 19.9$ lessons taught per week to the class, $SD = 4.63$, $M = 23.7$ lessons taught per week at the school, $SD = 4.68$) and their subject teachers ($N = 83$, 75.9% female, $M = 42.5$ years of age, $SD = 11.05$,

$M = 6.64$ lessons taught per week to the class, $SD = 3.56$, $M = 16.6$ lessons taught per week at the school, $SD = 7.23$) filled out a questionnaire to assess classroom disruptions (students' aggressive and nonaggressive behaviour, teachers' aggressive behaviour and methodological-didactic setting disruptions), the teacher–student relationship, and classroom management (Wettstein et al. 2016). When developing the questionnaire, we strove to formulate the items in the teachers' and students' versions as similarly as possible (e.g. "How often do students chatter while the teacher is explaining something?"). For the teacher–student relationship scale, however, far-reaching differences were necessary, with the teachers rating their classes and the students rating their teacher (e.g. "I like this teacher" or "I like my class"). Regarding the teacher–student relationship, teacher and student questionnaires did not measure exactly the same thing. All items of the students' and teachers' versions were rated on a four-point Likert scale involving the extent to which the students or teachers agreed with statements (*not true* = 1, *not very true* = 2, *somewhat true* = 3, *true* = 4) or how often certain situations occurred in the class (*never* = 1, *rarely* = 2, *often* = 3, *very often* = 4). In addition to this, data on sex, date of birth and academic year were recorded.

To distinguish students' individual and shared perceptions at the class level, the data were examined using multilevel analysis and intraclass correlations were determined (Lüdtke et al. 2009). Multilevel confirmatory factor analysis (MCFA) was performed in four steps in line with studies by Muthén (1994) and Grilli and Rampichini (2007); for details, see Wettstein et al. (2018). For the first step, exploratory factor analysis was performed. In the second step, it was checked whether at least 5% of the variance was attributable to the class level, fulfilling the minimal requirements for multilevel analysis (Lüdtke et al. 2009). Three items showed weak intraclass correlations in the range of 0.06–0.08 and were excluded from further analysis. In the third step, within- and class-level exploratory factor analysis was carried out, providing the basis for the fourth step, the doubly latent MCFA. The MCFA was implemented using Mplus 7.0 with a weighted least squares means and variance (WLSMV) estimator.

Based on within- and class-level exploratory factor analysis, we assumed a simple structure and configural invariance between levels. Even after strong factorial invariance was modeled in addition to the basic model, acceptable fit values were found (RMSEA = 0.015, CFI = 0.964, TLI = 0.962, $SRMR_{within} = 0.047$, $SRMR_{between} = 0.117$, $\chi^2 = 2{,}782$, $df = 2{,}135$, $p < 0.0001$). The within-level standardised factor loading of all items had an average of 0.70; the lowest loadings were above 0.47 for methodological-didactic setting items and above 0.60 for the items on the remaining scales. At the class level, averages were higher throughout. During estimation, the residual variances of 11 of the 48 items had to be set to zero because weak negative values were estimated for them (known as 'Heywood cases' in multilevel analysis).

Videographic study

For the second project phase (the video observation of instruction), a subsample of 18 classes out of the total sample was formed including a total of 272 students, 18 class teachers and 17 subject teachers. Because of a technical failure, there were no video recordings available for one subject teacher. The subsample was formed by comparing students' and class teachers' ratings for classroom disruptions in the questionnaire survey, with the 83 classes divided into four groups. The class teachers' and students' ratings of classroom disruptions were classified as convergent low (positive), convergent high (negative), divergent 1 (the class teacher perceived more classroom disruptions than the students) and divergent 2 (the students perceived more disruptions than the class teacher). For the video

observation, the classroom was equipped with two GoPro cameras and one dictaphone. After an acclimatisation period of 3 days, the instruction of class teachers and selected subject teachers was videotaped over two to three lessons. Afterwards, the teachers and students filled in a lesson-specific version of the questionnaire.

In total, 93 lessons were recorded. The system for analysis of classroom disruptions comprised five main categories: nonaggressive disruptions by students, aggressive disruptions by students, nonaggressive disruptions by teachers, aggressive disruptions by teachers, and methodological-didactic setting disruptions. The observer (a scientific assistant) was trained to a criterion of 0.80 agreement (Cohen's kappa) prior to the coding and unclear points were discussed, with the categories being delineated as clearly as possible. Video coding was undertaken using MAXQDA 11's event sampling feature. To determine intra-rater reliability, we recoded 11% of the coded video material and found that Cohen's kappa was 0.85. For analysis, the frequency of classroom disruptions was relativised to the duration of a lesson (45 min) so that the values for the classes could be compared. The analysis involved a paired-sample *t* test. Because there were no values available for one subject teacher, the data of 17 classes taught by 34 teachers were included in the analysis.

Results

Agreement between students (Research Questions 1 and 2)

The results of doubly latent confirmatory multilevel factor analysis indicated that a class's students rated instruction not only on the basis of individual yardsticks, but also to some degree held a shared classroom perception. Indicator-level intraclass correlations of students' ratings averaged 0.19 (0.18 for classteacher instruction and 0.20 for subject-teacher instruction) and latent-scale intraclass correlations averaged 0.27 (0.26 for class teachers and 0.29 for subject teachers). Therefore, not only could differences in judgement be attributed to individual students' perceptions, but also 27% of the variance could be attributed to the class level. A *level-specific reliability* calculation resulted in high values at the class level, while within-level values were somewhat lower (see

Table 1 Means, standard deviations, intraclass correlations, and level-specific composite reliability (omega) of latent variables, according to students' ratings of class-teacher and subject-teacher instruction

Scales	Number of items	Scale characteristics				ICC of latent variables		Reliability (ω)			
		M		*SD*				Class-level		Within-level	
		CT	ST	CT	ST	CT	ST	CT	ST	CT	ST
NON	4	2.34	2.37	0.62	0.67	0.25	0.27	0.90	0.91	0.81	0.81
AGS	4	1.83	1.78	0.57	0.58	0.25	0.23	0.94	0.92	0.78	0.81
AGT	3	1.28	1.31	0.48	0.53	0.23	0.25	0.87	0.93	0.88	0.88
SET	4	2.23	2.38	0.63	0.67	0.33	0.46	0.94	0.95	0.62	0.57
REL	6	3.52	3.27	0.56	0.67	0.33	0.33	0.96	0.96	0.92	0.91
CLA	3	3.34	3.09	0.59	0.69	0.15	0.22	0.93	0.96	0.73	0.73

CT class teacher, *ST* subject teacher, *NON* nonaggressive disruptions by students, *AGS* aggressive disruptions by students, *AGT* aggressive behavior by the teacher, *SET* methodological-didactic setting disruptions, *REL* teacher–student relationship, *CLA* classroom management

Table 1). Also, ICC (2) for class-level constructs was over 0.80 for all factors, with the exception of classroom management for the class teacher (ICC [2] = 0.73). Therefore, Hypothesis 1 was confirmed. The questionnaire results showed sufficient agreement between students' ratings of classroom disruptions, the teacher–student relationship and classroom management to aggregate student perceptions into class-mean ratings.

Students rated class teachers' lessons more positively than subject teachers'. Students perceived subject teachers as significantly less competent than class teachers in terms of classroom management ($d = -1.15$; $p < 0.001$). Furthermore, for subject teachers, teacher–student relationship quality was judged more critically ($d = -0.82$; $p < 0.001$) and more methodological-didactic setting disruptions were perceived during their instruction ($d = 0.47$; $p = 0.002$). Against this, no statistically significant differences were perceived with respect to nonaggressive student disruptions ($d = 0.13$) or teacher aggression ($d = 0.06$). The students, however, perceived significantly less student aggression during subject-teacher instruction ($d = -0.26$; $p = 0.002$). Therefore, Hypothesis 2 was only partially confirmed.

Correspondence in teachers' and students' ratings (Research Question 3)

In the ratings of the three forms of classroom disruptions, students' judgements had a weak average correlation of 0.44 with class teachers' ratings and a moderate average correlation of 0.54 with subject teacher's ratings (see Table 2). Moderate positive correlations between teachers and students were found for methodological-didactic setting disruptions (0.61 and 0.66), and weak correlations emerged for nonaggressive (0.39 and 0.44) and aggressive (0.31 and 0.52) student behaviour and the teacher–student relationship (0.38 and 0.23). In contrast, student and teacher ratings did not correspond at all for classroom management (0.09 and − 0.07), in line with expectations (Hypothesis 3).

Table 2 Teacher and student perspectives: attenuation-corrected and uncorrected correlations between teacher and student judgements for the total sample ($N = 083$)

Scale	Correl. between class teacher and students		Correl. between subject teacher and students	
	Corrected	Uncorrected	Corrected	Uncorrected
NON	0.39	0.31**	0.44	0.36**
AGS	0.31	0.24*	0.52	0.43**
SET	0.61	0.51**	0.66	0.56**
REL	0.38	0.28*	0.23	0.17
CLA	0.09	0.06	-0.07	− 0.04

Because AGT (aggressive behavior by the teacher) was not part of the teacher questionnaire, we cannot report any correlations for teachers on this dimension

NON nonaggressive disruptions by students, *AGS* aggressive disruptions by students, *SET* methodological-didactic setting disruptions, *REL* teacher–student relationship, *CLA* classroom management

The significance calculation is based on uncorrected correlations; *$p < 0.05$; **$p < 0.01$

Video observation (Research Question 4)

Behaviour observation showed that disruptions emanated from students as well as from teachers. In a lesson (45 min), an average of 69.58 disruptions ($SD = 44.68$) were observed. Of these, 94.5% were attributed to students, with significantly more nonaggressive (79.9%) disruptions than aggressive student disruptions (14.6%) identified. In total, 5.5% of the coded disruptions emanated from the teachers' side, where more nonaggressive (4.1%) than aggressive disruptions (1.4%) were observed.

Students disrupted the class most frequently through nonaggressive disruptions such as chattering instead of working, cutting in when the teacher was explaining something, or creating deliberate disturbances. Teachers disrupted the class most frequently through active forms of nonaggressive behaviour such as interrupting when working in silence and control-related communication. Passive disruption was exhibited when the teacher came too late or did not have the material ready. Aggressive behaviour was exhibited by the teacher to a far lower degree, in the form of ridiculing or shaming students or snappish remarks.

Subject teachers ($N = 17$; $M = 81.04$; $SD = 44.16$) had an average of around 20 more disruptions per lesson than class teachers ($N = 17$; $M = 58.11$; $SD = 42.20$). In subject-teacher lessons, aggressive student behaviour occurred more often than in class-teacher lessons ($M = 14.30$, $SD = 20.34$; $M = 6.06$, $SD = 11.62$). The results of the video observation are in line with Hypothesis 4.

Observer, teacher and student judgements (Research Question 5)

Observers' low-inference codings of classroom disruptions corresponded moderately well with students' ratings, but not with class-teachers' ratings, and only weakly with subject teachers' ratings. As anticipated, the best matches between students' and observers' judgements showed a moderate correlation of 0.53 for class-teacher lessons and 0.59 for subject-teacher lessons across all scales (see Table 3). The highest correlation appeared, as anticipated, in the rating of low-inference characteristics such as methodological-didactic setting disruptions (0.72 and 0.89), followed by moderate to weak positive correlations for

Table 3 Uncorrected correlations between observer, teacher and student judgements in class-teacher lessons and subject-teacher lessons of the subsample ($N = 18$)

Scale	Lessons of the class teacher			Lessons of the subject teacher		
	O–S	O–CT	CT–S	O–S	O–ST	ST–S
NON	0.59**	0.22	0.55*	0.58**	0.23	0.31
AGS	0.61**	−0.08	−0.16	0.41	0.55*	0.54*
AGT	0.56*	–	–	0.59*	–	–
SET	0.72**	0.36	0.67**	0.89**	0.66**	0.83**
REL	0.44	0.08	0.27	0.67**	0.40	0.25
CLA	0.25	−0.16	0.33	0.40	0.18	0.48

O–S observer–student, *O–CT* observer–class teacher, *CT–S* class teacher–student, *O–S* observer–student, *O–ST* observer–subject teacher, *ST–S* subject teacher–student

The calculation of significance is based on uncorrected correlations; *$p < 0.05$; **$p < 0.01$

teacher aggression (0.56 and 0.59), nonaggressive student disruptions (0.59 and 0.58) and student aggression (0.61 and 0.41). Surprisingly, observers' and students' judgements were correlated weakly to moderately in their assessment of the teacher–student relationship (0.44 and 0.67). Against this, observers' and students' ratings correlated weakly on classroom management (0.25 and 0.40), as anticipated. Class-teacher ratings and observer ratings showed little match, with no linear association across all scales (0.10). Subject-teacher ratings and observer ratings showed a weak average correlation of 0.40 across all scales (Hypothesis 5).

Discussion

In our study, we focused on how teachers, students and observers perceived classroom processes. Both teachers' and students' perspectives provide insight into what happens in the classroom. To create better learning environments for both, it is crucial to better understand their perspectives (Woolfolk Hoy and Weinstein 2006). Whereas previous research revealed agreement between students' and teachers' ratings on scales that capture disruptions and discipline problems, the agreement was much lower on scales that capture instruction (Desimone 2009; Fauth et al. 2014; Kunter and Baumert 2006; Wagner et al. 2015) or the student–teacher relationship (Murray et al. 2008). The results of the present study are in line with these findings. At the same time, our study went beyond the aforementioned studies by comparing different forms of classroom disruptions, teacher–student relationships and classroom management from the perspectives of students, teachers and observers.

We investigated the degree to which the students of a class agreed in their ratings of classroom processes. The average intraclass correlations of the latent variables was 0.27, which indicates that 27% of the total variance was explained by differences between classes and 73% by inter-individual differences. Thus, the criterion of 0.05 set to distinguish students' individual perceptions from students' shared perceptions at the class level was clearly surpassed (Lüdtke et al. 2009), allowing us to speak of some degree of shared perception. The results are in line with earlier findings on students' assessments of learning environments (Lüdtke et al. 2009). Furthermore, students rated class-teacher lessons significantly more positively than subject-teacher lessons in terms of classroom management and the teacher–student relationship, and they reported fewer methodological-didactic setting disruptions during instruction by the class teacher. This result, that students rate their relationship with subject teachers more critically, could affect the classroom environment negatively. Teacher–student relationships are fundamental to successful learning and teaching. These relationships originate in social interactions and can be understood as "the generalized interpersonal meaning students and teachers attach to their interactions with each other" (Wubbels et al. 2015, p. 364). Finally, students' perceptions of a learning environment and the teacher–student relationship play an important role in their learning. Therefore, teacher–student relationship quality is related to students' affective and cognitive outcomes (see Wubbels et al. 2015).

The correlations of students' and teachers' ratings show agreement on different forms of classroom disruptions (of the methodological-didactic setting, as well as nonaggressive and aggressive student behaviour), low agreement regarding the teacher–student relationship, and no agreement on classroom management, which teachers and students rated very differently. These findings are in line with previous research (e.g. den Brok et al. 2006a; Fauth et al. 2014; Kunter and Baumert 2006). The weak correlations between teacher and student

ratings on teacher–student relationship can be partly attributed to the fact that this scale does not measure the same thing for teachers and students. Teachers rated their classes ("I like my class"), whereas the students rated their teacher ("I like my teacher"). This could explain the rather weak correlations found for the teacher–student relationship. Furthermore, whereas agreement between teacher and student ratings was found in our study of low-inference disruptive items, our classroom management scale focused on more complex aspects requiring interpretation, such as rule clarity and monitoring (e.g. 'overview of the happenings in the class'). While teachers and students rated specific events (e.g. chattering, hitting or kicking) on the disruption scales, the classroom management scale served to capture teachers' self-image and their image as perceived by students. Thus, the focus shifted away from the perception of specific classroom events to convictions about one's own person or another person. Furthermore, it must be considered that teachers and students have different roles and tasks in classes and that, because of their lack of methodological-didactic knowledge, students could misunderstand teachers' didactic intentions in their assessment of instruction (Wagner 2008). Because students' behaviour is not meaningless, it is important to understand why students act as they do (Montuoro and Lewis 2015). It is crucial that teachers consider students' perspectives so that they can create better learning environments.

Systematic observation showed that students and teachers both disrupt the classroom. Whereas most classroom disruptions emanated from students, it must be emphasised that, in the observed classes, around 16 students and only one teacher were present, which relativises students' larger role in disruptions. Although teachers' very low frequency of aggressive behaviour in the present study was a positive point overall, it should be remembered that individuals tend to behave in a socially-desirable manner when they know that they are being observed. Overall, teachers must be sensitised to a differentiated perception of disruptions in the teaching–learning process and be aware that classroom disruptions not only emanate from students through their misbehaviour but also from teachers.

Differentiated perception is an important basis of classroom management, particularly to prevent classroom disruptions. The observational study showed that more classroom disruptions occurred in subject teachers' lessons than in class teachers' lessons. This finding is in line with earlier studies (Wettstein 2008) and could be explained by the tendency of students to have a somewhat less-close relationship with subject teachers, a lack of respect, the quality of instruction or ineffective classroom management. Subject teachers often teach one or two subjects for a few lessons each week to a class. Therefore, they have less time to build a relationship with students, resulting in less trust on the part of students. Furthermore, they have less time to set their own rules and to practise them with the class, which is why subject teachers often follow class teachers' rules. Our questionnaire study showed that students rated subject teachers' lessons generally less positively than class teachers' lessons. In the students' opinion, subject teachers were less competent in terms of classroom management than class teachers, and more methodological-didactic setting disruptions occurred in their lessons. Also, they rated their relationships with the subject teacher more critically. Our observational study showed that subject teachers must deal with more classroom disruptions than class teachers. Moreover, in other studies (Hüfner 2003), subject teachers reported more stress because of oppositional behaviour and discipline problems. For this reason, further research should consider teachers' different roles and tasks in the classroom and focus on teachers (e.g. subject teachers) who teach fewer lessons to a class.

External observers' low-inference coding of classroom disruptions agreed to a large extent with students' aggregated judgements, but not with teachers' judgements. This

difference could be attributed to the fact that students and observers have an observational advantage over the teacher, who must act under pressure to make numerous decisions while staying on top of the classroom's complex happenings. Consequently, there is an asymmetry in perceptiveness between teachers, students and external observers (Lortie 1975) that should be taken into account when investigating and measuring classroom processes. Each perspective provides insight into what happens in the classroom.

For the observational subsample, the correlations between teacher and student perceptions differed from those of the larger database. This could be attributed to different reference periods. In the observational subsample, we assessed the specific perception of the instruction in the videotaped lessons whereas, in the larger database, the global perception was measured over the year. Furthermore, it has to be mentioned that the observational sample is a selective subsample of the larger sample.

Strengths and limitations

The multiperspective capturing of classroom disruptions opens up a hitherto less-researched field, with student and teacher disruptions, the teacher–student relationship and classroom management being captured from the perspectives of students, class and subject teachers, and external observers. Differentiated constructs, such as classroom disruptions, enable better comparisons between different perspectives as well as deeper insights about what happens in the classroom.

The study, however, also had a few weaknesses. The first limitation concerns the student and teacher questionnaire. In terms of the teacher–student relationship, our questionnaires do not measure exactly the same thing ("I like this teacher," "I like my class"). Another limitation concerns the sample, which cannot be ruled out as selective. Although participation in the study was to some extent ordered by the management of individual schools, it must be assumed that, because most teachers participated voluntarily in the study, a positive bias cannot be ruled out for highly-motivated teachers. Therefore, the results, particularly about the level of disruption, cannot be generalised.

Conclusions

This study contributes to a growing body of research on multiperspective and multimethod assessments of classroom disruptions, classroom management and teacher–student relationships, taking into consideration students', teachers' and observers' perspectives. The study showed that students rate their class teachers more positively than their subject teachers. Furthermore, the study illustrates that, even though students and teachers share the same classroom, they do not necessarily share perspectives on the teacher–student relationship or classroom management. Finally, we demonstrated that the codings of an external observer corresponded better with students' than teachers' ratings. To sum up, students, teachers and observers perceived classroom processes differently. However, the divergences between different perspectives must not be treated from the outset as a measurement error, but rather interpreted against the background of role-specific subjectivity. Each perspective has specific methodological and theoretical advantages and disadvantages. It is crucial to understand these perspectives in order to create better learning environments for students and teachers and to prevent classroom disruptions.

Acknowledgements This study is part of our research project entitled The Perception of Social Interactions: How do Teachers and Students Perceive Nonaggressive and Aggressive Disruptions in the Classroom? (Project No. 13 w 001 01 of the Institute for Research at PHBern – University of Teacher Education). We would like to thank Professor Erich Ramseier at PHBern – University of Teacher Education for the helpful support in data analysis.

References

Bandura, A. (1979). *Aggression. Eine soziallerntheoretische Analyse*. Stuttgart: Klett-Cotta.

Bear, G. G. (2015). Preventive and classroom-based strategies. In E. T. Emmer & E. J. Sabornie (Eds.), *Handbook of classroom management* (2nd ed., pp. 15–39). New York: Routledge.

Brophy, J. (2006). History of research on classroom management. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 17–43). Mahwah, NJ: Lawrence Erlbaum Associates.

Crawshaw, M. (2015). Secondary school teachers' perceptions of student misbehaviour: A review of international research, 1983 to 2013. *Australian Journal of Education, 59*(3), 293–311.

den Brok, P. D., Bergen, T., & Brekelmans, M. (2006a). Convergence and divergence between students' and teachers' perceptions of instructional behaviour in Dutch secondary education. In D. L. Fisher & M. S. Khine (Eds.), *Contemporary approaches to research on learning environments: Worldviews* (pp. 125–160). Singapore: World Scientific.

den Brok, P., Brekelmans, M., & Wubbels, T. (2006b). Multilevel issues in research using students' perceptions of learning environments: The case of the Questionnaire on Teacher Interaction. *Learning Environments Research, 9*(3), 199–213.

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181–199. https://doi.org/10.3102/0013189X08331140.

Emmer, E. T., & Sabornie, E. J. (2015). Introduction to the second edition. In E. T. Emmer & E. J. Sabornie (Eds.), *Handbook of classroom management* (2nd ed., pp. 3–12). New York: Routledge.

Evertson, C. M., & Weinstein, C. S. (2006). Classroom management as a field of inquiry. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 3–16). Mahwah, NJ: Lawrence Erlbaum Associates.

Fauth, B., Decristan, J., Rieser, S., Klieme, E., & Büttner, G. (2014). Student ratings of teaching quality in primary school: Dimensions and prediction of student outcomes. *Learning and Instruction, 29,* 1–9.

Fend, H. (2002). Mikro-und Makrofaktoren eines Angebot-Nutzungsmodells von Schulleistungen (Micro- and macrofactors of an offer-usage model of school achievement). *Zeitschrift für Pädagogische Psychologie, 15,* 141–149.

Grilli, L., & Rampichini, C. (2007). Multilevel factor models for ordinal variables. *Structural Equation Modeling, 14,* 1–25. https://doi.org/10.1080/10705510709336734.

Helmke, A., Helmke, T., Lenske, G., Pham, G., Praetorius, A.-K., Schrader, F.-W., & Ade-Thurow, M. (2011). Unterrichtsdiagnostik – Voraussetzung für die Verbesserung der Unterrichtsqualität. In A. Bartz, M. Dammann, S. Huber, C. Kloft, & M. Schreiner (Eds.), *PraxisWissen SchulLeitung, AL 28* (Kap. 30.71, pp. 1–13). Köln: Wolters Kluwer.

Helmke, A., & Lenske, G. (2013). Unterrichtsdiagnostik als Voraussetzung für Unterrichtsentwicklung (Diagnosis of classroom instruction from different perspectives as a prerequisite for improving teaching and learning). *Beiträge zur Lehrerbildung, 31*(2), 214–233.

Hüfner, G. (2003). Die Belastungsprofile einzelner Lehrergruppen (The strain profiles of different groups of teachers). *Bayerischer Lehrer- und Lehrerinnen-Verband (BLLV), 10,* 12–15.

Krumm, V., & Weiß, S. (2000). Ungerechte Lehrer. Zu einem Defizit in der Forschung über Gewalt an Schulen. *Psychosozial, 79*(1), 57–74.

Kunter, M., & Baumert, J. (2006). Who is the expert? Construct and criteria validity of student and teacher ratings of instruction. *Learning Environments Research, 9,* 231–251.

Lewis, R. (2001). Classroom discipline and student responsibility: The students' view. *Teaching and Teacher Education, 17,* 307–319.

Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: The University of Chicago Press.

Lüdtke, O., Robitzsch, A., Trautwein, U., & Kunter, M. (2009). Assessing the impact of learning environments: How to use student ratings of classroom and school characteristics in multilevel modeling. *Contemporary Educational Psychology, 34,* 120–131. https://doi.org/10.1016/j.cedpsych.2008.12.001.

Montuoro, P., & Lewis, R. (2015). Student perceptions of misbehavior and classroom management. In E. T. Emmer & E. J. Sabornie (Eds.), *Handbook of classroom management* (2nd ed., pp. 344–362). New York: Routledge.

Murray, C., Murray, K. M., & Waas, G. (2008). Child and teacher reports of teacher–student relationships: Concordance of perspectives and associations with school adjustment in urban kindergarten classrooms. *Journal of Applied Developmental Psychology, 29*(1), 49–61.

Muthén, B. O. (1994). Multilevel covariance structure analysis. *Sociological Methods and Research, 22,* 376–398. https://doi.org/10.1177/0049124194022003006.

Obsuth, I., Murray, A. L., Malti, T., Sulger, P., Ribeaud, D., & Eisner, M. (2017). A non-bipartite propensity score analysis of the effects of teacher–student relationships on adolescent problem and prosocial behavior. *Journal of Youth and Adolescence, 46*(8), 1661–1687. https://doi.org/10.1007/s10964-016-0534-y.

OECD. (2014). *TALIS 2013 results: An international perspective on teaching and learning*. Paris: OECD Publishing. https://doi.org/10.1787/9789264196261-en.

OECD. (2017). How do teachers teach? Insights from teachers and students. *Teaching in Focus*. https://doi.org/10.1787/9a824d83-en.

Pianta, R. C., Hamre, B., & Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds & G. E. Miller (Eds.), *Handbook of psychology. Educational psychology* (Vol. 7, pp. 199–234). Hoboken, NJ: Wiley. https://doi.org/10.1002/0471264385.wei0710.

Praetorius, A.-K., Lenske, G., & Helmke, A. (2012). Observer ratings of instructional quality: Do they fulfill what they promise? *Learning and Instruction, 6,* 387–400. https://doi.org/10.1016/j.learninstruc.2012.03.002.

Scherzinger, M., Wettstein, A., & Wyler, S. (2017). Unterrichtsstörungen aus der Sicht von Schülerinnen und Schülern und ihren Lehrpersonen. Ergebnisse einer Interviewstudie zum subjektiven Erleben von Störungen (Classroom disturbances from the viewpoint of students and their teachers. An interview study). *Vierteljahresschrift für Heilpädagogik und ihre Nachbargebiete, 86,* 70–83. https://doi.org/10.2378/vhn2017.art06d.

Skiba, R. J., & Rausch, M. K. (2006). Zero tolerance, suspension, and expulsion: Questions of equity and effectiveness. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 1063–1089). Mahwah, NJ: Lawrence Erlbaum Associates.

Vieluf, S., Kaplan, D., Klieme, E., & Bayer, S. (2012). *Teaching practices and pedagogical innovation: Evidence from TALIS*. Paris: OECD Publishing. https://doi.org/10.1787/9789264123540-en.

Wagner, W. (2008). *Methodenprobleme bei der Analyse der Unterrichtswahrnehmung aus Schülersicht – am Beispiel der Studie DESI (Deutsch Englisch Schülerleistungen International) der Kultusministerkonferenz*. Unpublished dissertation, Universität Koblenz-Landau.

Wagner, W., Göllner, R., Werth, S., Voss, T., Schmitz, B., & Trautwein, U. (2015). Student and teacher ratings of instructional quality: Consistency of ratings over time, agreement, and predictive power. *Journal of Educational Psychology, 108*(5), 705–721. https://doi.org/10.1037/edu0000075.

Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology, 90*(2), 202–209.

Wentzel, K. R. (2010). Students' relationships with teachers. In J. L. Meece & J. S. Eccles (Eds.), *Handbook of research on schools, schooling, and human development* (pp. 75–91). New York: Routledge.

Wettstein, A. (2008). *Beobachtungssystem zur Analyse aggressiven Verhaltens in schulischen Settings BASYS (The observation system for the analysis of aggressive behavior in classroom settings BASYS)*. Bern: Huber.

Wettstein, A., Ramseier, E., & Scherzinger, M. (2018). Eine Mehrebenenanalyse zur Schülerwahrnehmung von Störungen im Unterricht der Klassen- und einer Fachlehrperson (A multilevel analysis of student perceptions of classroom disturbances in the lessons of a class teacher and one subject teacher). *Psychologie in Erziehung und Unterricht, 65*(1), 1–16.

Wettstein, A., Ramseier, E., Scherzinger, M., & Gasser, L. (2016). Unterrichtsstörungen aus Lehrer- und Schülersicht. Aggressive und nicht aggressive Störungen im Unterricht aus der Sicht der Klassen-, einer Fachlehrperson und der Schülerinnen und Schüler (Classroom disturbances from the perspective of teachers and students. Aggressive and nonaggressive disturbances from the point of view of the class teacher, the subject teacher, and the students). *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 48*(4), 171–183.

Wettstein, A., Thommen, B., & Eggert, A. (2010). Die Bedeutung didaktischer Aspekte in der Aggressionsprävention – drei Videostudien (The significance of didactic aspects in the prevention of aggressive behavior – three video studies). *Psychologie in Erziehung und Unterricht, 57,* 88–106. https://doi.org/10.2378/peu2010.art07d.

Winkel, R. (2009). *Der gestörte Unterricht. Diagnostische und therapeutische Möglichkeiten*. Baltmannsweiler: Schneider Verlag Hohengehren.

Woolfolk Hoy, A., & Weinstein, C. S. (2006). 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. 181–219). Mahwah, NJ: Lawrence Erlbaum Associates.

Wubbels, T., Brekelmans, M., den Brok, P., & van Tartwijk, J. W. F. (2006). An interpersonal perspective on classroom management in secondary classrooms in the Netherlands. In C. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice and contemporary issues* (pp. 1161–1191). New York: Lawrence Erlbaum Associates.

Wubbels, T., Brekelmans, M., den Brok, P., Wijsman, L., Mainhard, T., & van Tartwijk, J. W. F. (2015). Teacher–student relationships and classroom management. In E. T. Emmer & E. J. Sabornie (Eds.), *Handbook of classroom management* (2nd ed., pp. 363–386). New York: Routledge.

Wubbels, T., Brekelmans, M., & Hooymayers, H. P. (1992). Do teacher ideals distort the self-reports of their interpersonal behavior? *Teaching and Teacher Education, 8*(1), 47–58. https://doi.org/10.1016/0742-051X(92)90039-6.