Research

Classroom management of pre-service and beginning teachers: From dispositions to performance

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Abstract:

Classroom management is a central aspect of effective teaching. It is related to student motivation and learning achievement. Unfortunately, pre-service and beginning teachers lack on classroom management competence. Therefore, this study aims to find out, which classroom management facets pre-service and beginning teachers struggle with and how they are associated with each other. Professional knowledge, self-efficacy, professional vision, and performance of 206 pre-service and beginning teachers were measured. As a result, medium to high levels of classroom management competence were found. Although self-efficacy and knowledge were partially associated with professional vision, professional vision was not significantly related to performance. Implications for further research on classroom management are discussed.

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INTRODUCTION

Classroom management is a central aspect of effective teaching (Kunter et al., 2013; LePage et al., 2007; Seidel & Shavelson, 2007). Although there are other important aspects of teaching quality, such as supportive climate or instructional support (Baumert et al., 2010; Hamre et al., 2013; Kunter & Voss, 2013; Lipowsky et al., 2009), classroom management is also a prerequisite for other quality indices (Emmer & Stough, 2001; Klieme et al., 2001). It has additionally been found that effective classroom management is directly related to student motivation (Helmke, 2007; Kunter et al., 2007; Nie & Lau, 2009; Oliver et al., 2011), autonomy and responsibility (Elias & Schwab, 2006; Lewis et al., 2012; Pšunder, 2005), learning achievement (Freiberg et al., 2009; Hattie, 2009; Seidel & Shavelson, 2007; Wang et al., 1993) as well as teacher wellbeing (Dicke, Elling, et al., 2015; Klusmann et al., 2008) and their psychological health (Friedman, 2006; Hastings & Bham, 2003).

Although classroom management plays a major role in central teaching outcomes, studies show that especially pre-service and beginning teachers lack knowledge on classroom management (Poznanski et al., 2018). They also feel unprepared for dealing with classroom disruptions and dealing with difficult student behaviors (Meister & Melnick, 2003; Parsad et al., 2001). Consequently, many teachers burn out or leave the profession within the first five years of teaching, citing challenging student behavior as a significant reason (Common Good, 2004; Ingersoll, 2002).

Therefore, it may be appropriate getting a deeper understanding of how far pre-service teachers' and beginning teachers' classroom management is developed, concerning formal components like knowledge or performance as well as content-related facets like monitoring, managing momentum, or rules and routines.

One decisive mediator between knowledge and performance, which should be included, are situation-specific cognitive skills (Blömeke & Kaiser, 2017) such as a professional vision of classroom management that lays the ground for adaptive teaching over the course of a lesson. In contrast to knowledge, these "cognitive processes prior to, during, or following real-life performance [...] [are] organized along specific characteristics of classroom situations" (Blömeke & Kaiser, 2017, p. 795-96).

The present study aims to provide a detailed picture of the quality of pre-service and beginning teacher knowledge, professional vision as a situation-specific cognitive skill and performance concerning classroom management. The results should provide a sound basis for the advancement of future teacher training and education programs regarding the structure and development of classroom management competence.

Facets of effective classroom management

Classroom management includes all actions taken by teachers to maintain smooth and productive classroom settings, so as to maximize learning time (Doyle, 1986; Gettinger &

Kohler, 2018). The process entails both preventive and reactive strategies (Sugai & Horner, 2006), assuming that preventive strategies have a higher impact on maximizing learning time (Oliver et al., 2011).

Classroom management includes various facets. Firstly, teachers have to be alert to potential classroom disruptions and be prepared to react constructively, which is widely known as "withitness" (Kounin, 1970), or as "active supervision" (De Pry & Sugai, 2002). Furthermore, teachers need to react to different student actions simultaneously (Kounin, 1970; Simonsen et al., 2008). These two aspects refer to the facet of monitoring (Gold & Holodynski, 2017).

The second facet of classroom management is called managing momentum, which encompasses teacher behavior that ensures a steady learning flow (Anderson et al., 1979; Kounin, 1970). For instance, the teaching pace should be neither be too slow or too fast, and transitions conducted smoothly (Anderson et al., 1979; Charles, 2013; Kounin, 1970). Finally, teachers should maintain a group focus through engaging the attention of all students, getting as many students as possible to participate, and giving feedback on student participation and learning activities (Kounin, 1970).

Establishing rules and routines is a third facet of successful classroom management (Evertson & Emmer, 1982; Emmer et al., 1980; Lester et al., 2017; Malone & Tietjens, 2000). Teachers have to introduce rules and routines that support learning in a classroom setting, and to consequently supervise and ensure compliance with them (Elias & Schwaab, 2006; Emmer & Gerwels, 2006; Evertson & Emmer, 2012; Little & Akin-Little, 2008; McGinnis et al., 1995).

Overall, these three facets entail what Duke sums up as "provisions and procedures necessary to establish and maintain an environment in which instruction and learning can occur" (Duke, 1979, p. xii). For effective teaching, a first prerequisite is to be aware of these provisions and procedures, but this alone is not sufficient for effective classroom management.

Classroom management: from dispositions to performance

To obtain a more comprehensive picture of which factors affect classroom management performance, we applied the Perception-Interpretation-Decision Model (PID-model of Blömeke et al., 2015; Blömeke & Kaiser, 2017). This suggests that teaching performance is determined – beyond conveying knowledge – by a teacher's ability to perceive and interpret classroom events that are relevant for student learning, and to decide how to (re-)act appropriately to these events (see Figure 1). These components are called situation-specific cognitive skills, and especially perception and interpretation represent central aspects of what is also conceptualized as professional vision (Sherin & van Es, 2009). Santagata and Yeh (2016) conducted interviews with beginning teachers, who confirmed the moderating role of these situation-specific cognitive skills, especially in the first years of practice. Two

major prerequisites of such situation-specific cognitive skills are professional knowledge and affect-motivation (Figure 1).

Professional knowledge that is relevant for teaching mainly consists of content knowledge, pedagogical content knowledge and (general) pedagogical knowledge. Classroom management knowledge is related to the latter one (Shulman, 1986; Baumert & Kunter, 2013). Affect-motivation is essentially formed by professional beliefs, motivation, and the ability of self-regulation (Döhrmann et al., 2012). A central facet of affect-motivation with respect to classroom management is classroom-related self-efficacy. This concept refers to people's belief in their capability to conduct the actions required to complete a given task successfully (Bandura, 1997).
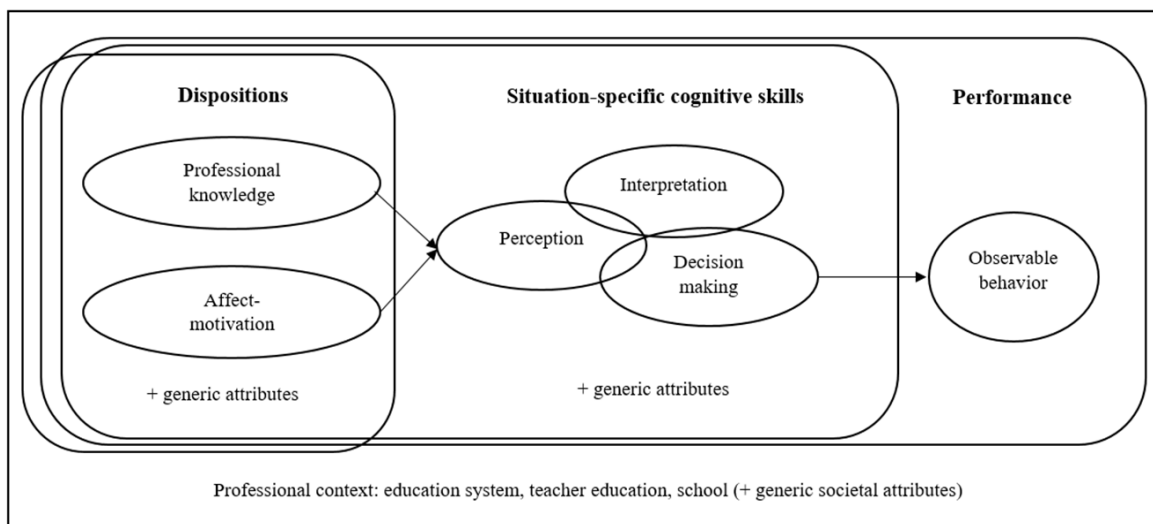
Figure 1. Perception-Interpretation-Decision Model (PID-model) as it is described by Blömeke et al. (2015) and Blömeke & Kaiser (2017)

There are a few studies exploring the association between dispositions and situation-specific cognitive skills regarding classroom management, as well as other teaching-related competencies. For example, regarding the association between professional knowledge and situation-specific cognitive skills, studies by Blömeke et al. (2014), Kersting et al. (2010), Kersting et al. (2012), König et al. (2014), as well as Meschede et al. (2017), revealed significant correlations between purely content knowledge, pedagogical content knowledge, as well as pedagogical knowledge, and situation-specific cognitive skills. Focussing on classroom management, Gold and Holodynski (2017) found a moderate correlation between classroom management knowledge and professional vision (as situation-specific cognitive skills) of classroom management.

Concerning the association between self-efficacy beliefs as a facet of affect-motivation and professional vision, studies by Gold et al. (2017) and Keppens, Consuegra, and Vanderlinde (2019) both found a positive association between professional vision and self-efficacy in pre-service and beginning teacher education.

Finally, with respect to the association between teaching performance in the sense of observable teaching behavior, positive associations between professional vision and teaching performance as well as teaching outcomes could already be found (Kersting et al., 2010; Kersting et al., 2012; Roth et al., 2011). However, for the domain of classroom management, studies have revealed mixed results. König and Kramer (2016) found a significant moderate positive association between professional vision of classroom management and classroom management performance assessed through student ratings. However, Gold et al. (2021) could not replicate these findings on a larger sample, using a similar measurement of classroom management performance, namely student ratings, but a different measure for professional vision.

Differences in expertise between pre-service teachers and beginning teachers

Concerning the associations between dispositional and situational skills, it is instructive to know whether there are any differences in the quality and strength of these associations between pre-service teachers and beginning teachers. Since the latter are already teaching in schools and engage with teaching issues, they may display a rather different profile of these dispositional and situational skills than pre-service teachers who are confronted with them mainly in academic courses at their university.

Looking at the educational status and professional experience of participants, there are studies which focus exclusively on experienced in-service teachers (Blömeke et al., 2014; Gold et al., 2021; Kersting et al., 2010; Kersting et al., 2012; Roth et al., 2011), or solely on pre-service teachers (Gold et al., 2017). Others have combined the examination of pre-service teachers, beginning teachers, and experienced in-service teachers (Gold & Holodynski, 2017; König & Kramer, 2016; Meschede et al., 2017) and found a significant difference in the level of professional vision regarding classroom management (d = 0.35) between pre-service teachers (with a bachelor degree) and experienced in-service teachers (Gold & Holodynski, 2017). The study of König and Kramer (2016) confirmed this result, but revealed a significant difference even between pre-service teachers and beginning teachers (d = 0.37), as well as between beginning teachers and experienced teachers (d = 0.61). Unfortunately, to the best of our knowledge, there are no studies which compared the associations between dispositional and situational skills, depending on the level of teaching experience. Theoretically, it might be assumed that pre-service teachers' knowledge structures are less interwoven with situation-specific cognitive skills than those of beginning teachers, because, in contrast to beginning teachers, pre-service teachers rather lack possibilities to apply their knowledge on specific situations (Renkl, Mandl, & Gruber, 1996).

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The present study

The present study has two aims. First, levels and associations between classroom-management-related knowledge, self-efficacy beliefs, and professional vision will be examined, looking for possible differences between pre-service and beginning elementary school teachers. We hypothesized that beginning teachers would display slightly higher levels of knowledge, since they already had a master degree. We also assumed that beginning teachers have a more accurate professional vision of classroom management, since they have gathered more experience. By contrast, since beginning teachers experience their career entries very differently (Björk, Stengård, Söderberg, Andersson, & Wastensson, 2019), we assumed that self-efficacy beliefs would be almost equal between the two groups. Concerning the associations between knowledge, self-efficacy beliefs, and professional vision, we did not expect any differences.

Second, this article explores the associations between dispositional skills (namely knowledge and self-efficacy beliefs), situation-specific cognitive skills (namely professional vision), and teaching performance in the domain of classroom management. Relying on the PID-Model and previous findings, we expected a significant positive association between professional vision and knowledge, as well as self-efficacy beliefs concerning classroom management. Moreover, we hypothesized a significant positive association between professional vision and classroom management.

METHOD

Sample and procedure

The sample consisted of 206 pre-service and beginning teachers educated in the State of North-Rhine-Westphalia, Germany. In contrast to many other countries (for an overview see Howe, 2006), German teacher education consists of two phases. The first phase takes place at universities for about five years and entails a scientific-based education. Pre-service teachers study two teaching subjects and attend general courses in Educational Sciences. The second phase, that of "induction", mainly takes place in school, accompanied by courses regarding subject-specific and general principles of teaching at a teacher training college and lasts about 18 months.

We collected data from both phases. 85 participants of this study were pre-service elementary school teachers (first phase), who were graduate students (had earned a bachelor degree) and had just commenced their practical semester in which they taught at a school for half a school year. 73 percent of the pre-service teachers were female. On average they were 25.44 years old (SD = 3.26) and were in their fourth year of study. They had 12.48 hours of previous lesson experience (SD = 29.25).

Additionally, 121 participants of this study were beginning elementary school teachers, who had already attended the induction phase at school (second phase). 89 percent of the beginning teachers were female. On average they were 26.31 years old (SD = 2.82). They had 38.95 hours of teaching experience (SD = 29.93), which included lessons given during their practical semester.

All participants were asked to complete an online questionnaire as an obligatory part of their training courses. The questionnaire was administered via unipark (https://www.unipark.com/) and required 45 minutes on average for completion. The survey measured participants' pedagogical knowledge, self-efficacy beliefs, and professional vision concerning classroom management.

Moreover, 52 of the 121 beginning teachers (second phase) had recorded one of their lessons, after schools and parents had given permission for recording. Each of these participants recorded one lesson of their own teaching with an HD-camera, which displayed the whole classroom. They uploaded the video file immediately afterwards for an analysis of their classroom management performance. These 52 beginning teachers did not differ significantly from the remaining 69 regarding their classroom-management-related knowledge (M_{video} = 0.78, SD = 0.08; $M_{no\ video}$ = 0.76; SD = 0.08; $t(118)$ = 0.78, p = .435, d = 0.15), self-efficacy beliefs (M_{video} = 0.61, SD = 0.12; $M_{no\ video}$ = 0.62; SD = 0.15; $t(119)$ = -.13, p = .899, d = -0.02) , or professional vision (M_{video} = 0.50, SD = 0.23; $M_{no\ video}$ = 0.44; SD = 0.20; $t(119)$ = 1.61, p = .109, d = -0.29).

We followed ethical and data privacy guidelines, as we had informed all beginning teachers in the study, the principals of their schools and the parents of the recorded classes about the study and had obtained written consent from all members. The videos and survey results were stored on a protected university server.

Instruments

Classroom management knowledge

To assess classroom management knowledge, the ProwiN-Test (Lenske et al., 2015) was used, which covers two forms of knowledge (declarative and procedural-conditional) on relevant teaching topics (classroom management, teaching methods, individualized instruction and feedback). The test provides six tasks for assessing knowledge of classroom management, two of them measuring declarative knowledge and four of them procedural-conditional knowledge.

Each of the two tasks for measuring declarative knowledge consists of a question ("What are effective strategies for preventing classroom disruptions?", "What are effective strategies for optimizing procedures between different learning activities?") with a set of five more or less effective strategies. Participants had to evaluate for each strategy, how much they agree that it is suitable for the particular task, based on a Likert scale (ranging from 1=very much to 4=not at all). For each set of strategies, eight research experts in the

domain of classroom management compiled a consensual expert rating concerning whether a strategy is either suitable or unsuitably. Participants' answers were compared with these expert ratings. They received one point for each case for which they could reproduce the experts' rating. The final test score was calculated as the proportion of correct answers to the number of potentially correct answers, and ranged from 0 to 1.

To assess procedural-conditional classroom management knowledge, participants read four vignettes of critical classroom situations. For each vignette, a set of four to six classroom management strategies were offered (vignette example: "Imagine that a teacher wants to check the class's homework. What can he/she do to optimize the procedure?"; related strategies: (1) "The teacher can ask the students to come to his/her desk to do the checking.", (2) "The teacher can patrol the rows of desks and control homework during discussion.", (3) "The teacher can ask a student to collect all the homework and check it all while students continue working.", (4) "The teacher can patrol the rows of desks and check the homework at the beginning of the lesson." (5) "The teacher can patrol the rows of desks and check the homework while students work."). Participants had to judge on a Likert scale, how well the proposed strategy fits the described critical situation (ranging from 1 = very well to 6 = insufficiently). The ProwiN-Test provides an expert rating for the relative effectiveness of each strategy within each vignette, that yields a rank order of the proposed strategies for each vignette. If a participant reproduced the relative rank order of the expert rating between two answers, they received one point. For example, if the experts rated Strategy 1 to react as more effective than Strategy 2 (1 > 2), participants received a point if they also ranked Strategy 1 higher than Strategy 2. For rating both strategies as equally effective, they received half a point, for evaluating Strategy 1 as less effective than Strategy 2 or a missing judgement, they obtained zero points. The final test score was calculated as proportion of correct pair comparisons to the number of potentially correct pair comparisons, and ranged from 0 to 1.

In the original study, both parts of the test yielded satisfactory to moderate reliability scores, namely Cronbach's α = .86 for procedural-conditional knowledge and Cronbach's α = .61 for declarative knowledge (Lenske et al., 2015).

Since we used only the six tasks for classroom management, we combined the scores of declarative and procedural-conditional knowledge (with a weight of 2 and 4) to form a general pedagogical knowledge score. For general classroom management knowledge, the test showed a relatively poor internal consistency (α = .48).

Self-efficacy beliefs about classroom management

Self-efficacy beliefs regarding classroom management were assessed with the validated questionnaire "Adapted Measure of Teacher Self-Efficacy for Pre-service Teachers" by Pfitzner-Eden et al. (2014), which is itself based on the TSES (Tschannen-Moran & Woolfolk Hoy, 2001). Participants had to evaluate each of the four items ("How certain are you that you can… (1) control disruptive behaviour in the classroom? (2) get

students to follow classroom rules? (3) calm a student who is disruptive and noisy? (4) keep a few problem students from ruining an entire lesson?") on a 9-point Likert scale ranging from "1 (not at all certain I can do)" to "9 (absolutely certain I can do)". As in the validation study (α = .91-.94), the self-efficacy scale revealed a very good internal consistency (α = .87) in the present study. The sum of the four items was divided by 36 (maximum of points) to generate a self-efficacy score ranging from 0 to 1.

Professional vision of classroom management as a situation-specific cognitive skill

Blömeke et al. (2015) suggest perception, interpretation and decision-making as factors influencing teaching performance. We used a validated video-based test measuring professional vision of classroom management (Gold & Holodynski, 2017), which mainly covers the interpretation of classroom events that are relevant for classroom management. The test consists of three video clips from early science lessons in primary schools (2nd and 3rd grade) lasting 2 to 5 min that were selected from a set of 29 lesson clips on the basis of an expert rating. In these lesson clips, students discussed hypotheses on physical phenomena, conducted experiments to test them, and discussed their experimental results. One clip shows clearly improvable classroom management, and both others quite good classroom management. Participants had to rate these three lesson clips regarding 42 rating items, on a 4- point Likert scale, ranging from 1 = totally disagree to 4 = totally agree), which referred to the three facets of classroom management described in the introduction. The ability to interpret the observed teacher's monitoring was measured by items such as "The teacher does not notice that remarkably many of the students do not follow the change from experimenting to presenting", whereas managing momentum was represented by such items as "The transition between the experiments and the reflection phase including student presentations is conducted too quickly". Establishing rules and routines was evaluated using such items as "Thanks to the sound signal, the first group can quickly begin their presentation."

Participants' answers were compared to an expert rating by 16 experts on educational psychology in general and classroom management in particular. One point was given for exact agreement with the experts' consensual answer and zero points for the other scale values. The final test score was calculated as the proportion of correctly judged items to the whole number of 42 items and ranged from 0 to 1. The item sets for each of the three classroom management facets monitoring, managing momentum, and establishing rules and routines revealed moderate internal consistencies ($\alpha_{monitoring}$ = .76, $\alpha_{managing\ momentum}$ = .69, $\alpha_{rules\ and\ routines}$ = .64).

Classroom management performance

Classroom management performance of the beginning teachers was rated via a coding manual that Lenske et al. (2016) developed for rating teaching performance regarding the facets of monitoring, managing momentum, and establishing rules and routines, as well as dealing with disruptions. For the present study, we combined the facets dealing with

disruptions and monitoring, because both facets overlap and we intended to match the three facets of the professional vision test with the respective facets of the performance rating.

The rating procedure was conducted as follows. Each beginning teacher prepared and taught a lesson in mathematics or German, which lasted about 45 min and which was recorded with one HD-camera that covered the whole class. Trained judges watched each recorded lesson by using a time-sampling procedure. For each 5 min time slot, they made detailed notes of the three classroom management facets and summarized the quality of each of the three facets on a 4-point scale (1 = very poor, 2 = rather poor, 3 = rather good, 4 = very good), for each 5 min time slot. The final performance scores on classroom management for each pre-service teacher was calculated as the mean across all 5-min ratings of his or her lesson for each classroom management facet. The scores ranged from 1 (very poor) to 4 (very good) and were converted into an average score ranging from 0 to 1.

The training of the performance evaluation lasted 6 hours and contained the following components. (1) Information about classroom management and its three facets (monitoring, managing momentum, establishing rules and routines) with a detailed coding manual referring to positive and negative behavioral indicators of each facet, (2) video demonstrations of each facet as well as (3) exercises of video analysis with feedback by experts and an expert rating.

Four judges participated in the training. For assessing the interrater reliability of the performance ratings, the four trained judges evaluated 16 (30%) recorded lessons, which were randomly selected from the total number of 52 recorded lessons. Interrater reliability was calculated with unadjusted ICC, which also assigned substantial mean differences between judges to error variance. Raters' overall classroom management coding yielded a very good interrater reliability $ICC_{CM\ unadjusted}$ = .82). The coding on the facets monitoring and establishing rules and routines revealed a good interrater reliability ($ICC_{monitoring}$ = .78, $ICC_{rules\ and\ routines}$ = .77). The interrater reliability of managing momentum ($ICC_{managing\ momentum}$ = .53) was only moderate, but still acceptable (Cicchetti, 1994; Koo & Li, 2016). This low interrater reliability was caused by significant mean differences between judges. As overall the interrater reliability was satisfactory, the remaining 36 recorded lessons were coded by only one trained rater.

Data analysis

For testing statistical prerequisites (linear relationship between variables, search for outliers, etc.), for displaying descriptive statistics, and calculating t-tests, we used IBM SPSS Statistics 25 (IBM, 1983-2017). For performing moderator analysis, we additionally applied the IBM SPSS Package PROCESS 3.5 (Hayes, 2018).

Path analyses were conducted with IBM SPSS Amos 25.0.0 (IBM, 1983-2017). We chose to work only with manifest variables because the sample size was insufficient for structural equation modelling. Figures were also designed with IBM SPSS Amos 25.0.0 (IBM, 1983-

2017). Performance was not included in this comparison between pre-service teachers and beginning teachers, because pre-service teachers were still at university and could give nor record any lesson.

RESULTS

Differences in Classroom Management Knowledge, Self-Efficacy, and Professional Vision between Pre-service and Beginning Teachers

Table 1 shows the descriptive statistics for pre-service teachers and beginning teachers regarding their knowledge, self-efficacy beliefs, and their professional vision.

Table 1

Classroom Management Knowledge, Self-Efficacy, and Professional Vision for Pre-Service Teachers and Beginning Teachers

Variable	Pre-service teachers		Beginning teachers				
	M	*SD*	*M*	*SD*	*t*	*p*	*Cohens' d*
Pedagogical knowledge	.75	.09	.76	.08	-1.38	.16	-.11
Self-efficacy beliefs	.61	.14	.61	.13	.06	.94	.00
Professional vision	.43	.20	.46	.21	-.89	.37	-.14
Monitoring	.38	.21	.40	.24	-.80	.42	-.08
Managing momentum	.47	.23	.50	.24	-.59	.55	-.12
Establishing rules and routines	.45	.22	.49	.21	-1.08	.28	-.18

Note. Each variable was standardized to a scale between 0 and 1. A score of 1 means 100% agreement with an expert rating for pedagogical knowledge and professional vision, a very good performance rating, and a maximum of self-efficacy beliefs.

Pre-service teachers and beginning teachers did not differ significantly regarding pedagogical knowledge, self-efficacy, and professional vision.

To examine whether the predictors pedagogical knowledge and self-efficacy beliefs are associated differently with the dependent variable professional vision of classroom management regarding pre-service teachers and beginning teachers, we included the educational status as moderating variable (Cohen et al., 2003).

Table 2

Multiple regressions on the professional vision of classroom management including moderator analysis

Predictor	Dependent variable (professional vision)	Pre-service teachers		Beginning teachers		group x predictor	
		β	p	β	p	β	p
Pedagogical knowledge	Classroom management	.01	.95	.19	.04	.23	.24
	Monitoring	.01	.92	.16	.08	.20	.27
	Managing momentum	-.07	.52	.12	.17	.23	.17
	Establishing rules and routines	.08	.47	.25	.01	.21	.35
Self-efficacy beliefs	Classroom management	.26	.02	.21	.02	-.02	.86
	Monitoring	.27	.01	.16	.07	-.06	.64
	Managing momentum	.27	.01	.17	.07	-.09	.51
	Establishing rules and routines	.16	.15	.25	.01	.10	.47

In the sample of pre-service teachers, we did not find an association between their pedagogical knowledge and professional vision, whereas we indeed found this correlation for the total scale as well for the facet of establishing rules and routines in the sample of beginning teachers. Anyway, moderator analysis showed no significant interaction between predictor and group while predicting professional vision (Table 2).

Regarding self-efficacy beliefs, significant positive associations emerged in the total scale of professional vision for both teacher groups. The interaction term for self-efficacy beliefs was also not significant, revealing that the association between self-efficacy beliefs and professional vision was quite similar in both groups.

Level of and Associations between Pedagogical Knowledge, Self-efficacy Beliefs, Professional Vision, and Performance

Because pre-service and beginning teachers did not differ in the means concerning their dispositions (pedagogical knowledge and self-efficacy beliefs) and situation-specific cognitive skills (professional vision of classroom management), we computed the overall means and associations regarding these variables and performance. As can be seen in Table 3, pedagogical knowledge, self-efficacy beliefs and performance scores on classroom

management revealed quite a high level for pre-service and beginning teachers. By contrast, their professional vision as a situation-specific cognitive skill was located in the lower mid-range of the scale. Moreover, the standard deviations of professional vision were twice as high as the standard deviations of the other variables.

Table 3

Overall level of classroom management competence

Classroom management skills	N	M	SD	min	max
Pedagogical knowledge	203	.76	.09	.27	.96
Self-efficacy beliefs	204	.62	.14	.25	.94
Professional vision	204	.46	.21	.00	.96
Monitoring	204	.40	.23	.00	1.00
Managing momentum	204	.49	.24	.00	1.00
Establishing rules and routines	204	.48	.22	.00	1.00
Performance	52	.81	.12	.54	.98
Monitoring	52	.81	.13	.42	1.00
Managing momentum	52	.81	.15	.47	1.00
Establishing rules and routines	52	.80	.14	.42	1.00

Concerning the associations between the variables, self-efficacy beliefs were significantly related to professional vision, whereas pedagogical knowledge was not. Additionally, pedagogical knowledge and self-efficacy beliefs were not associated with each other. Finally, performance ratings could not be accurately predicted by professional vision (Figure 2).
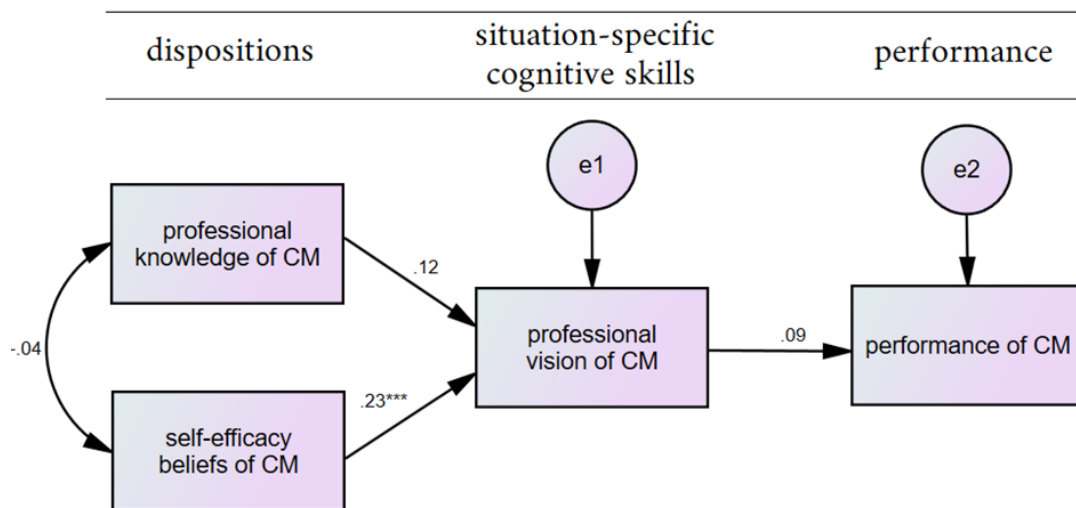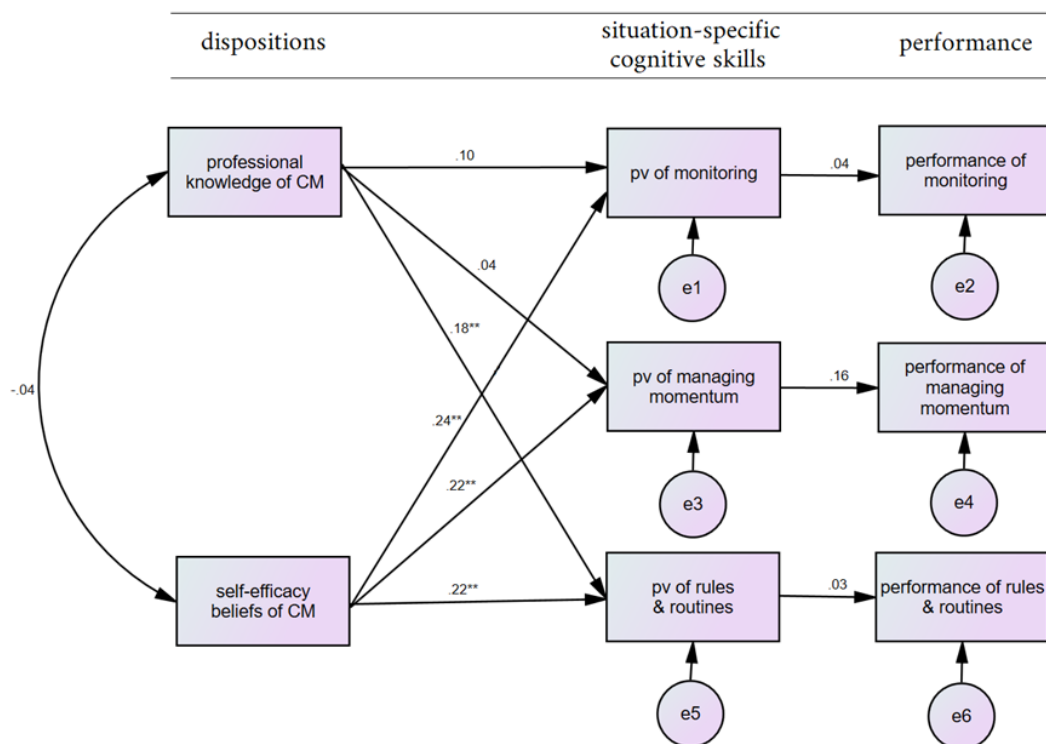
Figure 2. Path analysis including professional knowledge, self-efficacy beliefs, professional vision, and performance

Figure 3 shows these associations in more detail. In fact, self-efficacy beliefs were significantly associated with all three facets of professional vision concerning classroom management, whereas pedagogical knowledge was only significantly related to professional vision of establishing rules and routines.

Figure 3. Path analysis including professional knowledge, self-efficacy beliefs, professional vision, and performance including the facets of classroom management concerning professional vision and performance

Consequently, professional vision of establishing rules and routines was more accurately predicted by pedagogical knowledge and self-efficacy beliefs (R^2 = .077) than professional vision of monitoring (R^2 = .052) or managing momentum (R^2 = .048). As already shown in Figure 2, performance was not significantly associated with professional vision, although there were noticeable differences between the three facets. In contrast to the performance of monitoring as well as rules and routines, the performance of managing momentum showed a small positive, but insignificant correlation with professional vision of managing momentum.

DISCUSSION

The aim of this study was to provide an understanding of the classroom management competence of pre-service and beginning teachers analysing dispositions, situation-specific cognitive skills, and performance. The results should help us to understand the associations between pedagogical knowledge, self-efficacy beliefs, and professional vision as a situation-specific cognitive skill, as well as performance within the first year of teaching practice. During this phase, a lack of classroom management competence is referred to as a main reason for burnout or dropout (Common Good, 2004; Ingersoll, 2002; Meister & Melnick, 2003; Parsad et al., 2001).

Comparison between pre-service and beginning teachers

We did not find any significant differences between pre-service and beginning teachers in terms of their levels of pedagogical knowledge, self-efficacy beliefs, and professional vision. This confirms our first hypothesis concerning self-efficacy beliefs, but contradicts our hypothesis concerning pedagogical knowledge and professional vision. Obviously, the (small) number of additional university courses, the writing of their master thesis and additional practical experience may not improve these skills to a reasonable extent.

Association between self-efficacy beliefs and professional vision

Concerning this association, our hypothesis could be confirmed that both variables were positively related, in fact for both teacher groups. This is in line with the PID-model of Blömeke and Kaiser (2017) and validates earlier results showing the joint growth of both factors in the context of teacher training (Cocca et al., 2019; Gold et al. 2017; Honskusová & Rusek, 2019). However, one exception occurred when looking at the facets of professional vision. Pre-service teachers showed a higher correlation between their self-efficacy beliefs and their professional vision of managing momentum than beginning teachers.

Association between pedagogical knowledge and professional vision

Concerning this association, we found a shift. For pre-service teachers, pedagogical knowledge was not correlated with their professional vision, while for beginning teachers, these variables were already more positively correlated. Although these differences in associations were not significant, an explanation might be that the beginning teachers of our sample had been stayed at a school for half a year during their practical semester, while pre-service teachers had not. Accordingly, the former reported around 26 hours of teaching experience more than the pre-service teachers. This additional classroom experience might have supported beginning teachers in relating their relatively high level of pedagogical knowledge to their perception and interpretation of classroom events, thus increasing the association between their knowledge and professional vision. Up to now, no empirical study has investigated whether pre-service teacher teaching experience during their practical semester could lead to such an increased association. Therefore, the findings should be replicated in further studies.

Association between professional vision and performance

The positive association between both combined scales did not reach significance. The same non-significant results occurred when calculating the associations between professional vision and performance of the corresponding three facets of classroom management. These results contradict our second hypothesis that both variables are positively associated, and is also at odds with the results of König and Kramer (2016), but in line with the non-significant results of Gold et al. (2021) who had both measured teaching performance through student ratings. One remarkable similarity between both non-significant studies is the exceptionally high scores for teaching performance. All teachers were judged to display good to very good classroom management, while their professional vision measured through a video-based test ranged from very weak to very good.

While the high performance scores of Gold et al. (2021) may be due to desirability bias from primary school students who had rated their teacher's classroom management, the high performance scores in the current study are surprising because the teachers judged were beginners, a group that can be expected to have problems with classroom management. A desirability bias on the part of the raters can be ruled out, because all raters used a validated manual, were extensively trained, and revealed good interrater reliabilities. One possible explanation of the high performance scores could be linked to the impact of the situational context of the selected class, which is also mentioned in the PID-Model (Blömeke & Kaiser, 2017). The beginning teachers in our study did not yet teach an own class, but the class of their mentor, who was present during the lesson they taught for this study. Mentors probably already had established effective rules and routines of classroom management. Our beginning teachers may rely on these established rules and routines making their lesson smooth and lively regardless of their professional vision. Additionally, Weiner (2003) pointed out that the degree of challenge in monitoring and establishing rules

and routines might depend heavily on the previous social experiences of students, which also belong to the situational context of each particular class. To rule out this confounding condition, it seems necessary to rate classroom management performance only of teachers who teach their own class, and to compare it with their professional vision.

The results of this study only partially confirm the assumptions of the Perception-Interpretation-Decision Model (Blömeke & Kaiser, 2017). At the same time, our findings indicate a need to differentiate the PID-Model, especially regarding the concept of classroom management. It may be important to build clearer concepts regarding the influence of the situational context of the classes (e.g. teaching one's own class or a mentor's class) on the development of professional vision as a situation-specific cognitive skill and performance regarding classroom management.

LIMITATIONS AND RECOMONDATIONS

The present study entails some methodological limitations. Firstly, we focused mainly on self-efficacy beliefs as one of several aspects of affect-motivation. However, Döhrmann et al. (2012) stated that other content-related beliefs, motivation, and the ability of self-regulation also belong to affective-motivational dispositions. Including these variables might explain more of the inter-individual variance of professional vision that we found between pre-service and beginning teachers. Secondly, we only operationalized professional vision as a situation-specific cognitive skill (Sherin & van Es, 2009). Perception and decision were not part of our instrument for measuring professional vision, which should be considered in further studies. Thirdly, it would have been helpful to use structural equation modelling to consider all variables (from dispositions to performance) in one model. Unfortunately, only 23.3 percent of the participants were willing to grant scientific access to their lessons, so that we had to use a manifest model. Finally, to ensure higher validity for the measurement of pre-service teacher performance, the additional measurement of student learning outcomes would have been a useful indicator (Nilsen & Gustafsson, 2016).

CONCLUSION

Overall, this study provides insightful results concerning the classroom management competency of pre-service and beginning teachers from dispositions to performance, to which new teacher training and education programs could refer. However, further research is needed to validate these results, including more comprehensive consideration of affective-motivational and contextual factors.

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions.* SAGE Publications Inc.

Anderson, L., Evertson, C., & Brophy, J. (1979). An experimental study of effective teaching in first-grade reading groups. *Elementary School Journal, 79,* 193–223. https://doi.org/10.1086/461151

Bandura, A. (1997). *Self Efficacy: The Exercise of Control.* Freeman.

Baumert, J., & Kunter, M. (2013). The COACTIV model of teachers' professional competence. In M. Kunter, J. Baumert, W. Blum, U. Klusmann, S. Krauss, & M. Neubrand (Eds.), *Cognitive Activation in the Mathematics Classroom and Professional Competence of Teachers* (pp. 25–48). https://doi.org/10.1007/978-1-4614-5149-5_2

Baumert, J., Kunter, M., Blum, W., Brunner, M., Voss, T., Jordan, A., & Tsai, Y.-M. (2010). Teachers' mathematical knowledge, cognitive activation in the classroom, and student progress. *American Educational Research Journal, 47*(1), 133–180. https://doi.org/10.3102/0002831209345157

Björk, L., Stengård, J., Söderberg, M., Andersson, E., & Wastensson, G. (2019). Beginning teachers' work satisfaction, self-efficacy and willingness to stay in the profession: a question of job demands-resources balance? *Teachers and Teaching, 25*(8), 955–971. https://doi.org/10.1080/13540602.2019.1688288

Blömeke, S., & Kaiser, G. (2017). Understanding the Development of Teachers' Professional Competencies as Personally, Situationally and Socially Determined. In D. J. Clandini, & J. Husu (Eds.), *International Handbook on Research on Teacher Education* (pp. 783–802). Sage. https://doi.org/10.4135/9781526402042.n45

Blömeke, S., Gustafsson, J.-E., & Shavelson, J. (2015). Beyond dichotomies: Competence viewed as a continuum. *Zeitschrift für Psychologie, 223,* 3–13. https://doi.org/10.1027/2151-2604/a000194

Blömeke, S., König, J., Busse, A., Suhl, U., Benthien, J., Döhrmann, M., & Kaiser, G. (2014). Von der Lehrerausbildung in den Beruf – Fachbezogenes Wissen als Voraussetzung für Wahrnehmung, Interpretation und Handeln im Unterricht [The transition from teacher training to the teaching profession: subject-specific knowledge as a prerequisite for perception, interpretation and decision-making in the classroom]. *Zeitschrift für Erziehungswissenschaft, 17*(3), 509–542. https://doi.org/10.1007/s11618-014-0564-8

Charles, C. M. (2013). *Building classroom discipline* (11th ed.). Pearson.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284–290. https://doi.org/10.1037/1040-3590.6.4.284

Cocca, M., Dimas Castro, J., Espino Verdugo, F., & Cocca, A. (2019). *Effect of a video-based reflection program on teachers' professional vision, self-efficacy, and students' motivational climate.* 11th International Conference on Education and New Learning Technologies. https://doi.org/10.21125/edulearn.2019.1697

Cohen, J., Cohen, P., Leona S. A., & West, S. H. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. L. Erlbaum Associates.

Common Good (2004). *Teaching interrupted: Do discipline policies in today's public schools foster the common good?* Public Agenda.

De Pry, R. L., & Sugai, G. (2002). The effect of active supervision and pre-correction on minor behavioral incidents in a sixth grade general education classroom. *Journal of Behavioral Education, 11*(4), 255–267. https://doi.org/10.1023/a:1021162906622

Dicke, T., Elling, J., Schmeck, A., & Leutner, D. (2015). Reducing reality shock: The effects of classroom management skills training on beginning teachers. *Teaching and Teacher Education, 48,* 1–12. https://doi.org/10.1016/j.tate.2015.01.013

Döhrmann, M., Kaiser, G., & Blömeke, S. (2012). The conceptualisation of mathematics competencies in the international teacher education study TEDS-M. *ZDM, 44*(3), 325–340. https://doi.org/10.1007/s11858-012-0432-z

Doyle, W. (1986). Classroom organization and management. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 392–431). Macmillan.

Duke, D. L. (1979). *Classroom Management.* University of Chicago Press.

Elias, M. J., & Schwaab, Y. (2006). From compliance to responsibility: Social and emotional learning and classroom management. In C. M. Evertson, & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 309–342). Erlbaum.

Emmer, E. T., Evertson, C. M., & Anderson, L. (1980). Effective classroom management at the beginning of the school year. *Elementary School Journal, 80,* 219–231. https://doi.org/10.1086/461192

Emmer, E. T., & Gerwels, M. C. (2006). Classroom management in middle and high school classrooms. In C. M. Evertson, & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 407–437). Erlbaum. https://doi.org/10.4324/9780203874783

Emmer, E., & Stough, L. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychologist, 36,* 103–112. https://doi.org/10.1207/S15326985EP3602_5

Evertson, C. M., & Emmer, E. T. (1982). Effective management at the beginning of the year in junior high classes. *Journal of Educational Psychology, 74,* 485–498. https://doi.org/10.1037/0022-0663.74.4.485

Evertson, C. M., & Emmer, E. T. (2012). *Classroom management for elementary teachers* (9th ed.). Addison Wesley.

Freiberg, H. J., Huzinec, C. A., & Templeton, S. M. (2009). Classroom management - a pathway to student achievement: A study of fourteen inner-city elementary schools. *The Elementary School Journal, 110*(1), 63–80. https://doi.org/10.1086/598843

Friedman, I. A. (2006). Classroom management and teacher stress and burnout. In C. M. Evertson, & C. S. Weinstein (Eds.), *Handbook of Classroom Management: Research, Practice, and Contemporary Issues* (pp. 925–944). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203874783.ch35

Gettinger, M., & Kohler, K. M. (2018). Process-outcome approaches to classroom management and effective teaching. In C. M. Evertson, & C. S. Weinstein (Eds.), *Handbook of classroom management* (pp. 73–96). Routledge. https://doi.org/10.4324/9780203874783.ch4

Gold, B., & Holodynski, M. (2017). Using digital video to measure the professional vision of elementary classroom management: Test validation and methodological challenges. *Computers & Education, 107,* 13–30. https://doi.org/10.1016/j.compedu.2016.12.012

Gold, B., Junker, R., Wissermann, M., Klassen, C., & Holodynski, M. (2021). Are Good Observers Good Classroom Managers? Relationship Between Teachers' Professional Vision and Their Students' Ratings on Classroom Management. *International Journal of Educational Research, vol. 109,* 101811. https://doi.org/10.1016/j.ijer.2021.101811

Gold, B., Meschede, N., Fiebranz, A., Steffensky, M., Holodynski, & Möller, K. (2017). Professionelles Wissen über und Wahrnehmung von Klassenführung und Lernunterstützung im naturwissenschaftlichen Grundschulunterricht - Eine Zusammenhangsstudie aus generischer und naturwissenschaftsdidaktischer Perspektive [Professional knowledge and vision of classroom management and learning support in early science school lessons - a contextual study from a generic and didactic perspective]. In H. Fischler, & E. Sumfleth (Eds.), *Professionelle Kompetenz von Lehrkräften der Chemie und Physik* (pp. 203–220). Logos.

Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., Brown, J. L., Cappella, E., Atkins, M., Rivers, S. E., Brackett, M. A., & Hamagami, A. (2013). Teaching through Interactions: Testing a Developmental Framework of Teacher Effectiveness in over 4,000 Classrooms. *The Elementary School Journal, 113*(4), 461–487. https://doi.org/10.1086/669616

Hastings, R. P., & Bham, M. S. (2003). The relationship between student behaviour patterns and teacher burnout. *School Psychology International, 24*(1), 115–127. https://doi.org/10.1177/0143034303024001905

Hattie, J.A.C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement.* Routledge. https://doi.org/10.4324/9780203887332

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* Guilford Press.

Helmke, A. (2007). Aktive Lernzeit optimieren – Was wissen wir über effiziente Klassenführung? [Optimizing active learning time – what do we know about efficient classroom management]. *Pädagogik, 59*(5), 44–49.

Honskusová, L., & Rusek, M. (2019). *Evaluation of the effectiveness of a pre-service chemistry teachers' professional vision development course*. 13th conference of the European Science Education Research Association.

Howe, E. R. (2006). Exemplary teacher induction: An international review. *Educational Philosophy and Theory, 38*(3), 287–297. https://doi.org/10.1111/j.1469-5812.2006.00195.x

IBM (1983-2017). *SPSS.* Armonk.

Ingersoll, R. M. (2002). The teacher shortage: A case of wrong diagnosis and wrong prescription. *NASSP Bulletin, 86*(631), 16–31. https://doi.org/10.1177/019263650208663103

Keppens, K., Consuegra, E., & Vanderlinde, R. (2019). Exploring student teachers' professional vision of inclusive classrooms in primary education. *International Journal of Inclusive Education*, 1–17. https://doi.org/10.1080/13603116.2019.1597186

Kersting, N. B., Givvin, K. B., Sotelo, F. L., & Stigler, J. W. (2010). Teachers' analyses of classroom video predict student learning of mathematics: Further explorations of a novel measure of teacher knowledge. *Journal of Teacher Education, 61*, 172–181. https://doi.org/10.1177/0022487109347875

Kersting, N. B., Givvin, K. B., Thompson, B. J., Santagata, R., & Stigler, J. (2012). Measuring usable knowledge: Teachers' analyses of mathematics classroom videos predict teaching quality and student learning. *American Educational Research Journal, 49*, 568–589. https://doi.org/10.3102/0002831212437853

Klieme, E., Schümer, G., & Knoll, S. (2001). Mathematikunterricht in der Sekundarstufe I: „Aufgabenkultur" und Unterrichtsgestaltung im internationalen Vergleich [Mathematics instruction in secondary school. Task types and teaching structure in international comparison]. In E. Klieme, & J. Baumert (Eds.), *TIMSS – Impulse für Schule und Unterricht* (pp. 43–57). Bundesministerium für Bildung und Forschung.

Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Teachers' occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology, 100*(3), 702–715. https://doi.org/10.1037/0022-0663.100.3.702

König, J., Blömeke, S., Klein, P., Suhl, U., Busse, A., & Kaiser, G. (2014). Is teachers' general pedagogical knowledge a premise for noticing and interpreting classroom situations? A video-based assessment approach. *Teaching and Teacher Education, 38*, 76-88. https://doi.org/10.1016/j.tate.2013.11.004

König, J., & Kramer, C. (2016). Teacher professional knowledge and classroom management: On the relation of general pedagogical knowledge (GPK) and classroom management expertise (CME). *ZDM, 48*, 139–151. https://doi.org/10.1007/s11858-015-0705-4

Koo, T. K ., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155–163. https://doi.org/10.1016/j.jcm.2016.02.012

Kounin, J. S. (1970). *Discipline and group management in classrooms.* Holt, Rinehart, & Winston.

Kunter, M., Baumert, J. R., & Köller, O. (2007). Effective classroom management and the development of subject-related interest. *Learning and Instruction, 17*, 494–509. https://doi.org/10.1016/j.learninstruc.2007.09.002

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*, 805–820. https://doi.org/10.1037/a0032583

Kunter, M., & Voss, T. (2013). The model of instructional quality in COACTIV: A multicriteria analysis. In M. Kunter, J. Baumert, W. Blum, U. Klusmann, S. Krauss, & M. Neubrand (Eds.), *Cognitive activation in the mathematics classroom and professional competence of teachers–results from the COACTIV project* (pp. 97–124). Springer. https://doi.org/10.1007/978-1-4614-5149-5_6

Lenske, G., Thillmann, H., Wirth, J., Dicke, T., & Leutner, D. (2015). Pädagogisch-psychologisches Professionswissen von Lehrkräften. Evaluation des ProwiN-Tests [Pedagogical-psychological professional knowledge of teachers. Evaluation of the ProwiN test]. *Zeitschrift für Erziehungswissenschaft, 18*(2), 222–245. https://doi.org/10.1007/s11618-015-0627-5

Lenske, G., Wagner, W., Wirth, J., Thillmann, H., Cauet, E., & Leutner, D. (2016) Die Bedeutung des pädagogisch-psychologischen Wissens für die Qualität der Klassenführung und den Lernzuwachs der Schüler/innen im Physikunterricht. [The importance of pedagogical knowledge for classroom management and for students' achievement in physics]. *Zeitschrift für Erziehungswissenschaft, 19*(1), 211–233. https://doi.org/10.1007/s11618-015-0659-x

LePage, P., Darling-Hammond, L., Akar, H., Gutierrez, W. C., Jenkins-Gunn, E., & Rosebrock, K. (2007). Classroom management. In L. Darling-Hammond, & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 327–357). Wiley & Sons.

Lester, R. R., Allanson, P. B., & Notar, C. E. (2017). Routines Are the Foundation of Classroom Management. *Education, 137*(4), 398–412.

Lewis, R., Romi, S., & Roache, J. (2012). Excluding students from classroom: Teacher techniques that promote student responsibility. *Teaching and Teacher Education, 28*(6), 870–878. https://doi.org/10.1016/j.tate.2012.03.009

Lipowsky, F., Rakoczy, K., Pauli, C., Drollinger-Vetter, B., Klieme, E., & Reusser, K. (2009). Quality of geometry instruction and its short-term impact on students' understanding of the Pythagorean Theorem. *Learning and Instruction, 19*(6), 527–537. https://doi.org/10.1016/j.learninstruc.2008.11.001

Little, S. G., & Akin-Little, A. (2008). Psychology's contributions to classroom management. *Psychology in the Schools, 45,* 227–234. https://doi.org/10.1002/pits.20293

Malone, B. G., & Tietjens, C. L. (2000). Re-examination of classroom rules: The need for clarity and specified behavior. *Special Services in the Schools, 16,* 159–170. https://doi.org/10.1300/J008v16n01_11

McGinnis, J. C., Frederick, B. P., & Edwards, R. (1995). Enhancing classroom management through proactive rules and procedures. *Psychology in the Schools, 32,* 220–224. https://doi.org/10.1002/1520-6807(199507)32:3<220::AID-PITS2310320309>3.0.CO;2-4

Meister, D. G., & Melnick, S. A. (2003). National new teacher study: Beginning teachers' concerns. *Action in Teacher Education, 24*(4), 87–94. https://doi.org/10.1080/01626620.2003.10463283

Meschede, N., Fiebranz, A., Möller, K., & Steffensky, M. (2017). Teachers' professional vision, pedagogical content knowledge and beliefs: On its relation and differences between pre-service and in-service teachers. *Teaching and Teacher Education, 66,* 158–170. https://doi.org/10.1016/j.tate.2017.04.010

Nie, Y., & Lau, S. (2009). Complementary roles of care and behavioral control in classroom management: The self-determination theory perspective. *Contemporary Educational Psychology, 34,* 185–194. https://doi.org/10.1016/j.cedpsych.2009.03.001

Nilsen, T., & Gustafsson, J.-E. (2016). *Teacher quality, instructional quality and student outcomes. Relationships across countries, cohorts and time.* SpringerOpen.

Oliver, R. M., Wehby, J. H., & Reschly, D. J. (2011). Teacher classroom management practices: Effects on disruptive or aggressive student behavior. *Campbell Systematic Reviews, 4,* 1–55. https://doi.org/10.4073/csr.2011.4

Parsad, B., Lewis, L., & Farris, E. (2001). *Teacher Preparation and Professional Development: 2000.* E.D. Tabs. NCES 2001-088. U.S. Department of Education.

Pfitzner-Eden, F., Thiel, F., & Horsley, J. (2014). An adapted measure of teacher self-efficacy for preservice teachers: Exploring its validity across two countries. *Zeitschrift für pädagogische Psychologie, 28*(3), 83–92. https://doi.org/10.1024/1010-0652/a000125

Poznanski, B., Hart, K. C., & Cramer, E. (2018). Are teachers ready? Preservice teacher knowledge of classroom management and ADHD. *School Mental Health: A Multidisciplinary Research and Practice Journal, 10*(3), 301–313. https://doi.org/10.1007/s12310-018-9259-2

Pšunder, M. (2005). How effective is school discipline in preparing students to become responsible citizens? Slovenian teachers' and students' views. *Teaching and Teacher Education, 21*(3), 273–286. https://doi.org/10.1016/j.tate.2005.01.005

Renkl, A., Mandl, H., & Gruber, H. (1996). Inert knowledge: Analyses and remedies. *Educational Psychologist, 31*(2), 115–121. https://doi.org/10.1207/s15326985ep3102_3

Roth, K. J., Garnier, H., Chen, C., Lemmens, M., Schwille, K., & Wickler, N. I. Z. (2011). Videobased lesson analysis: Effective science PD for teacher and student learning. *Journal of Research in Science Teaching, 48*, 117–148. https://doi.org/10.1002/tea.20408

Santagata, R., & Yeh, C. (2016). The role of perception, interpretation, and decision making in the development of beginning teachers' competence. *ZDM, 48*, 153–165. https://doi.org/10.1007/s11858-015-0737-9

Seidel, T., & Shavelson, R. J. (2007). Teaching Effectiveness Research in the Past Decade: The Role of Theory and Research Design in Disentangling Meta-Analysis Results. *Review of Educational Research, 77*(4), 454–499. https://doi.org/10.3102/0034654307310317

Sherin, M. G., & van Es, E. A. (2009). Effects of video club participation on teachers' professional vision. *Journal of Teacher Education, 60*(1), 20–37. https://doi.org/10.1177/0022487108328155

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*, 4-14. https://doi.org/10.3102/0013189X015002004

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education & Treatment of Children, 31*, 351–380. https://doi.org/10.1353/etc.0.0007

Sugai, G., & Horner, R. R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35*, 245–259.

Tschannen-Moran, M., & Hoy, A.W. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a knowledge base for school learning. *Review of Educational Research, 63*, 249–294. https://doi.org/10.2307/1170546

Weiner, L. (2003). Why is classroom management so vexing to urban teachers? *Theory into Practice, 42*(4), 305–312. https://doi.org/10.1207/s15430421tip4204_7

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