ABSTRACT:
A decline in students’ science achievement after transitioning from elementary to secondary school is a domain-specific issue almost all over the world. For many participating countries, large-scale assessments show that science learning outcomes decrease significantly when students move to secondary school. It is assumed that reasons for this decrease can be found by investigating quality of instruction. One aspect of this is teachers’ classroom management, which is expected to vary between elementary and secondary school teachers who have different educational backgrounds in most of the participating countries. The present study investigates this aspect in physics lessons by analyzing videos (N = 114) which are determined by teacher and student questionnaires and tests. This article focuses on the development of the questionnaire used to assess the students’ perceptions of their teachers’ classroom management. Results confirm the expected differences between elementary and secondary students’ perceptions and partly explain it.

KEYWORDS: Teacher-Student Interaction, Classroom Management, Classroom Techniques, Student Perceptions, Video Analysis

1. INTRODUCTION

Research about teacher effects on students and lesson outcomes indicates that “effective teaching demands the orchestration of a wide array of skills that must be adapted to specific contexts” (Brophy, 1986, p. 1069). One of these skills is teachers’ classroom management ability, which influences the amount of academic
learning time by well organized classrooms “where activities run smoothly, transitions are brief and orderly, and little time is spent getting organized or dealing with misconduct” (Brophy, 1986, p. 1070). The importance of effective classroom management can also be observed by comparing models and lists describing variables which influence the quality of instruction in classes (e.g. Slavin, 1994; Brophy, 1999; Helmke, 2009). Due especially to the results (for science) of international comparative studies like TIMSS and PISA (Martin et al. 2000; Hiebert et al., 2003; OECD, 2001, 2004), empirical research on quality of instruction took on greater importance all over the world. All models and lists include teachers’ classroom management as one important variable for successful teaching and learning, but there is still little quantitative research on classroom management that leads to more generalizable results. Additionally, there are few studies that consider students’ perceptions of their teacher’s classroom management, though as early as 1970, Kounin did highlight the significance of students’ perceptions. He pointed out that when the students perceive their teacher to be an efficient manager, they are more likely to work more diligently and less disruptively (Kounin, 1970). “Both students and teachers have strong beliefs about what it takes to be an effective manager. These individuals are the central participants in classroom interactions” (Woolfolk Hoy & Weinstein, 2006). Former investigations on quality of instruction confirm these statements as they indicate that the students’ impressions of a lesson correlate with their achievements (Clausen, 2002).

This study has developed instruments for investigating classroom management from different perspectives: Students are asked, firstly, how their teacher manages the lessons. In order to be able to compare the students’ perceptions with their teacher’s procedural knowledge about classroom management, highly inferential video analyses were then used to gain a more objective view. By contrast, Clausen (2002) found that teacher questionnaires do not provide reliable information about how they really behave in classroom situations. To correlate the findings about classroom management with student achievements, the study is embedded in a larger German PLUS-project (professional knowledge, teaching and learning in science, and students’ outcome in the transition from elementary to secondary school), where numerous teacher and student questionnaires and tests are applied in a pre-/post design (Kauertz et al., 2010). This article focuses on the development of an instrument assessing the students’ perceptions of their teachers’ classroom management (SPCM) and presents results of a study with 2680 students. The sample is subdivided into students from elementary (N = 1326) and secondary (N = 1354) schools as research indicates that elementary and secondary school teachers’ managerial skills vary substantially (Weinert, 1996), which can at least partly be explained by their different educational backgrounds.

2. THEORETICAL FRAMEWORK

Purpose of the Study

A change in student outcomes after their transition from one school stage to another is an international problem and a matter of research all over the world (Jindal-Snape, 2009). Regarding Germany, large-scale assessments show that German students’ achievements in science learning decrease significantly when they change from elementary (Grades 1 to 4) to secondary school (Grades 5 to 10)
(OECD 2001, 2004; Bos et al., 2008; for a detailed description of the German education system see KMK, 2010). Additionally, numerous references show a decrease in students’ motivation and interest over the whole of secondary school up to Grade 10 (Gardner, 1998; Jenkins & Pell, 2006). Possible explanations, such as a general decline of interest during adolescent development, have been proven for the middle and last years of secondary schooling in Germany (e.g. Hoffmann, Häussler & Lehrke, 1997). Yet, the first years after transition remain an important desideratum for research, including expected differences in instructional quality in elementary and secondary schools.

Against this background, the German PLUS-project systematically compares quality of instruction in physics lessons during the elementary to secondary school transition. In order to investigate complexity, conditional aspects and outcomes of physics lessons, different pedagogical, psychological and subject-specific theories and models were considered in order to cover a broad range of variables (Kauertz & Kleickmann, 2009). One aspect intensively considered is teachers’ classroom management, regarded as a precondition for efficient teaching and learning (Everson & Harris, 1999; Weinert, 1996).

**Research on Classroom Management**

“The topic of classroom management has always lurked in the shadows of research on teaching” (Doyle, 1986, p. 392) because it “is neither content knowledge, nor psychological foundations, nor pedagogy, nor pedagogical content knowledge” (Everson & Weinstein, 2006, p. 4). It has played a more or less major role in social psychology and sociology, but the resulting publications were traditionally not of great importance in research on teaching, so “classroom management has had a difficult time finding a niche” (Doyle, 1986, p. 392). In the 1970s, specialists on teaching effectiveness research began to include classroom management in their investigations (e.g. Good & Grouws, 1975; Brophy & Everson, 1976; Anderson, Everson & Brophy, 1979; as reported by Doyle, 1986), and first studies indicated correlations between classroom management and student achievements. It was then that research on classroom management was introduced into broader educational research in Anglo-American countries, though it remained less prominent in continental European states (van Ackeren & Kühn, 2010). Moreover, research on classroom management is still part of more general pedagogical studies and plays a minor role in subject-related investigations on quality of instruction. It has, however, been recognized that “classroom management is not context-free, but rather is dependent upon the level of schooling” (Everson & Weinstein, 2006, p. 7). Also, different subjects require specific managerial skills: doing experiments without spending too much time on organizing materials, for example, requires subject-specific managing competences (Kircher et al., 2007, p. 231) that every physics teacher should possess. Consequently, more empirical research is needed. Provided in the following paragraph is a summary of studies from the last two decades, after which a definition of classroom management for the present study is introduced.

In 1993, Wang, Haertel and Walberg conducted a meta-analysis on research papers about conditional variables on school performance and found classroom management at rank 2 (Wang et al., 1993). They concluded their analyses by recognizing the fact that those who wish to facilitate academic performance should recognize proximal variables such as psychological determinants of learning (especially metacognition and cognition) and influential social and emotional aspects
including classroom management and student-teacher social interactions (Wang et al., 1993). Successful teachers ensure that lessons have as few disruptions as possible so that students can be engaged in learning activities as much as possible (Kounin, 2006). Numerous recent references confirm that effective classroom management increases student engagement and keeps students interested, helps preventing discipline problems, enhances instructional and learning time, and finally affects student achievement (Wang, et al., 1993). A high amount of ‘time on task’ advances not only students’ school performance and improvement (cf. Evertson & Harris, 1992; Good & Brophy, 2003), but also proves relevant for students’ perceived motivational encouragement (Rakoczy, 2006).

All of the presented studies look at classroom management either as a broad construct with multiple facets or, more narrowly, as a control variable within a larger project. Both perspectives lead to difficulties in interpreting results: A narrower view misses the range of the large construct; a broad view including numerous social aspects like classroom atmosphere makes it almost impossible to develop and conduct quantitative studies able to generalize results. The idea of this study is to condense the existing framework into a measurable (physics-specific) definition and, therefore, be able to consider different perspectives of classroom management and its correlations with student achievements; and to do so with a large sample of 2680 students attending different school stages (elementary and secondary).

**Definition of Classroom Management**

Many present definitions convey a broad, multifaceted view of classroom management. To cite Kounin (2006) as an example, efficient classroom management creates effective lesson ecology with an effective learning milieu. This goal indicates that teachers need to have a broad construct of skills, but it does not make clear how to achieve this. Similarly, Anderson, Evertson and Emmer (1980, p. 343) define classroom management as “anything that the teacher did to organize students, space, time and materials so that instruction in content and learning activities could take place”. This means that efficient classroom management represents a wide range of interactions between teachers and students, which includes educational, social, spatial and material conditions. Duke (1979, p. xii) also describes classroom management quite expansively as the “provisions and procedures necessary to establish and maintain an environment in which instruction and learning can occur”. More precisely, Doyle (1986) focuses on the guidance of student behaviour: “Classroom Management refers to the actions and strategies teachers use to solve the problem of order in classrooms” (Doyle, 1986, p. 397). Emmer and Stough (2001) summarize the four main aspects of classroom management as a skill set that includes creating order in the sense of discipline and creating motivation by offering as much ‘time on task’ as possible. Although there are far fewer German references about classroom management than in Anglo-American areas, there is one definition which describes classroom management unambiguously: “Classroom management involves all teacher activities which maintain student interest throughout lesson contents, thereby preventing them from being disruptive” (Wellenreuther, 2008, p. 244, translated by author).

The listing of different definitions shows that there is no coherent usage of the term *classroom management*. Different authors cite aspects they consider to be important in the sense of effective classroom management. Anderson, Evertson and Emmer (1980) remark that the construct is difficult to coherently define because of its
complexity: “There are many ways to describe classroom management, and no single conceptual scheme or set of dimensions can adequately account for all aspects of management” (Anderson et al., 1980, p. 345).

In order to be able to measure the impact of efficient classroom management on student achievement, an operationalized, measurable definition of the term is needed. For this study, the definition is concretized as a teacher’s leading strategies in the classroom: the efficient management of a class includes reactive, preventive and proactive elements (Helmke, 2009). The teacher has to know how to deal with discipline problems efficiently without losing too much time, how to set up a system of rules and rituals and how to prevent disruptions. Based on these parameters, the three main constructs of classroom management within this study are discipline, rule clarity and prevention of disruptions.

3. GOALS AND RESEARCH QUESTIONS

The fundamental goal of the ongoing project is to clarify the relation between teachers’ classroom management, students’ perceptions of it and student achievement. Therefore, an objective description of teachers’ classroom management characteristics (generated by highly inferential video analysis) needs to be related to students’ perceptions of their teacher’s managerial behaviour and to their outcomes (e.g. performance and motivation). Based on prior studies about classroom management’s influence on lesson outcomes, and in order to analyze the relation, a model of Classroom Management and Physics Learning has been developed (see Fig. 1). The model illustrates the assumption that teachers’ classroom management, defined as a construct of discipline, rule clarity and prevention of disruption, influences lesson outcomes (post-scores of student performance, motivation and interest) across the duration of instruction. Teachers’ classroom management itself is not only determined by their job experience but also by their students’ characteristics (pre-test), such as their subject-related interest and personal motivation. Students’ characteristics again also influence their outcomes (post-test). Further variables such as students’ general cognitive abilities or their socioeconomic backgrounds are also considered, but are not included in the model because they only serve as control variables.

All of the relevant aspects and relations are assessed and computed at elementary and secondary school levels because of expected teacher differences due to their different educational tracks in Germany; the relations themselves are not expected to vary, but further results of data analyses need to be awaited.
The overarching research question of the study, which is still running, is: Which different classroom management characteristics between elementary and secondary school (physics) teachers can be identified, and which combinations of the characteristics lead to higher student achievement (e.g. performance and motivation)? Therefore, student perceptions and the fit between them and the objectively described classroom management characteristics (reliable video analyses) are to be considered. As this article solely focuses on teacher-student interactions and student perceptions thereof, the following section on research methods introduces the instrument used to assess student opinions: the questionnaire about students’ perceptions of their teachers’ classroom management (SPCM).

4. METHODOLOGY

Pilot Study
In April 2008, a pilot study was conducted with 278 students from eleven classes of eleven teachers. Ninety of these 278 students were in elementary school (Grade 4) while 188 were in secondary school (Grade 6). The secondary school sample was subdivided into 78 students from Hauptschule (German secondary school for basic general education; it has a diverse student body in terms of ethnic groups, social classes and students’ abilities) and a diverse teacher body in terms of teacher training and 110 students from Gymnasium (German secondary school for intensified general education on an advanced level). The pilot-study questionnaire on students’ perceptions of their teacher’s classroom management (SPCM_p) consisted of three scales with nine items each: discipline (scale I), rule clarity (scale II) and prevention of disruptions (scale III). Detailed classical quality analyses (coding procedure and factor analysis) and probabilistic analysis (Rasch analysis) lead to the decision to keep the three subscales within the questionnaire, but to shorten it to 17 out of the 27 items for the main study. Reliabilities measured by Cronbach’s $\alpha$ were above $\alpha = .810$ for all three scales. Moreover, a factor analysis showed that the three constructs can be validly separated, as all items load on the assumed factor (factor
load higher $a = .3$). Moreover, Rasch analysis confirmed item fit for almost every item of one scale (Outfit MNSQ between .8 and 1.2). For rule clarity and prevention of disruption, there was one item each that showed an Outfit MNSQ of 1.3, but for content reasons it was decided to keep both. Descriptive results indicated that the rating scale (four point Likert-scale) was fully utilized. For the main study, the questionnaire on students' perceptions of their teachers’ classroom management ($\text{SPCM}_{\text{ms}}$) consisted of 17 items (see Table 1).

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Discipline</th>
<th>Rule Clarity</th>
<th>Prevention of Disruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of Items</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Four Point Likert-Scale</td>
<td>1 = disagree</td>
<td>1 = disagree</td>
<td>1 = disagree</td>
</tr>
<tr>
<td></td>
<td>2 = partly agree</td>
<td>2 = partly agree</td>
<td>2 = partly agree</td>
</tr>
<tr>
<td></td>
<td>3 = mostly agree</td>
<td>3 = mostly agree</td>
<td>3 = mostly agree</td>
</tr>
<tr>
<td></td>
<td>4 = agree</td>
<td>4 = agree</td>
<td>4 = agree</td>
</tr>
<tr>
<td>Reliability ($\alpha$)</td>
<td>$\alpha = .897$</td>
<td>$\alpha = .811$</td>
<td>$\alpha = .872$</td>
</tr>
<tr>
<td>Rasch-Reliability</td>
<td>$\text{Rel}_{\text{item}} = .92$</td>
<td>$\text{Rel}_{\text{item}} = .91$</td>
<td>$\text{Rel}_{\text{item}} = .96$</td>
</tr>
<tr>
<td></td>
<td>$\text{Rel}_{\text{person}} = .84$</td>
<td>$\text{Rel}_{\text{person}} = .69$</td>
<td>$\text{Rel}_{\text{person}} = .82$</td>
</tr>
<tr>
<td>Outfit MNSQ</td>
<td>0 items with Outfit MNSQ &gt;1.2</td>
<td>1 item with Outfit MNSQ &gt;1.2</td>
<td>1 item with Outfit MNSQ &gt;1.2</td>
</tr>
<tr>
<td>Factor Analysis</td>
<td>Factor load a &gt;.3</td>
<td>Factor load a &gt;.3</td>
<td>Factor load a &gt;.3</td>
</tr>
<tr>
<td>Mean</td>
<td>2.62</td>
<td>2.69</td>
<td>2.57</td>
</tr>
<tr>
<td>Standard Dev.</td>
<td>.87</td>
<td>.90</td>
<td>.84</td>
</tr>
</tbody>
</table>

*Table 1: Quality Features of $\text{SPCM}_{\text{ms}}$ after Pilot Study*

**Main Study**

For the main study, 2680 German students from 114 classes of 114 teachers were selected. Roughly 300 schools were contacted and were asked to participate. In order to minimize financial burdens, the selection of the sample was based on voluntary participation and on distances between schools and the university. The revised instrument $\text{SPCM}_{\text{ms}}$, consisting of five to six items per subscale for a total of 17 items, was administered to 60 elementary and 54 secondary school classes in Germany, comprising 1326 elementary and 1354 secondary school students (lower and upper level performers).

As previously mentioned, the questionnaire consists of three scales. Discipline refers to questions about how disruptive the students' perceive their physics lessons to be and how often the teacher has to remind students to work quietly. The scale about rules and rituals not only refers to whether the teacher has set up a system of rules and rituals, but also whether all of the students know, understand and adhere to them. Scale III refers to questions about the students’ perceptions of their teacher’s “omnipresence” and if they’re able to notice and prevent disruptive behavior even when busy with individual students. Figure 2 shows an example of the questionnaire.
Because the youngest participating students were only nine years of age, the four point Likert-scale (disagree, partly disagree, mostly agree, agree) was explained by an example. In order to prevent reading difficulties, every single item was presented by a university staff member. By filling in the questionnaire with university staff instead of with their teacher, it was also guaranteed that the students would respond more honestly; without the fear that their teacher would know how they answered. Moreover, the meaning of the content in each scale was explained. For example, concerning the prevention of disruption construct (scale III) it states:

*Now I would like to know whether your teacher tries to prevent in-class disturbances before they happen. That is, before a student is about to disrupt the lesson, the teacher gives him or her signals to be quiet. Such a signal could be a stern look.*

The items of the SPCM are adapted from works of Gruehn (2000), PISA 2000 (OECD, 2001), Clausen (2002) and Schönbächler (2005). Nine of the 17 items were developed by the author.

5. Results

Elementary and secondary students’ responses on the 17 items of the SPCM were classically and probabilistically analyzed. Probabilistic data analyses were computed due to the fact that they enable the conversion of ordinal data into linear data, whereas parametric tests require linear data. In a rating scale, the 1, 2, 3 and 4 could be misleading. Rasch allows one to convert this problematic data into data that can be used for statistical tests (Bond & Fox, 2007).

Factor Analysis and Correlations between Subscales

A factor analysis shows that the three constructs can be validly separated, as all items load on the assumed factor (factor load higher $a = .3$). This indicates that the instrument represents the three expected traits of discipline, rule clarity and prevention of disruptions. As table 2 shows, correlations between the three subscales do exist, but as they are small it can still be assumed that the scales for rule clarity
and prevention of disruption imply two dimensions. Therefore, it makes no sense to evaluate the reliability of all items at once.

<table>
<thead>
<tr>
<th>Correlations (^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated PERSON Measure Discipline</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>Estimated PERSON Measure Rule Clarity</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>Estimated PERSON Measure Prevention of Disruption</td>
</tr>
<tr>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Correlations between the Three Subscales of SPCM<sub>mc</sub>

Reliability

Cronbach's alpha is commonly used, but an alpha uses raw nonlinear data so reliability was double-checked by computing Rasch reliability as well. The internal consistency of the SPCM measured by Cronbach’s alpha is \(\alpha = .87\) for discipline, \(\alpha = .72\) for rule clarity and \(\alpha = .82\) for prevention of disruption. Rasch computes item and person reliabilities: Item reliabilities are all above .95. Person reliabilities range over the three scales from .40 (rule clarity) to .71 (prevention of disruption) to .79 (discipline).

Means and Standard Deviations

The means for each scale were computed separately for each school form. Table 3 shows the resulting measures based on classical data analysis.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean&lt;sub&gt;ES&lt;/sub&gt;</th>
<th>SD&lt;sub&gt;ES&lt;/sub&gt;</th>
<th>Mean&lt;sub&gt;SSL&lt;/sub&gt;</th>
<th>SD&lt;sub&gt;SSL&lt;/sub&gt;</th>
<th>Mean&lt;sub&gt;SSHA&lt;/sub&gt;</th>
<th>SD&lt;sub&gt;SSHA&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>1326</td>
<td>602</td>
<td>752</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discipline</td>
<td>2.57</td>
<td>0.74</td>
<td>2.48</td>
<td>0.80</td>
<td>2.62</td>
<td>0.78</td>
</tr>
<tr>
<td>Rule Clarity</td>
<td>3.38</td>
<td>0.61</td>
<td>3.32</td>
<td>0.64</td>
<td>2.81</td>
<td>0.80</td>
</tr>
<tr>
<td>Prevention of Disruption</td>
<td>3.20</td>
<td>0.63</td>
<td>3.05</td>
<td>0.62</td>
<td>2.66</td>
<td>0.79</td>
</tr>
</tbody>
</table>

<sub>ES = Elementary school, SSL = Secondary school for lower achievers, SSHA = Secondary school for higher achievers; SD = Standard deviation</sub>

Table 3: Means and Standard Deviations of each Scale Separated by School Form

As the resulting means show, a positive tendency in the students' perceptions of their teachers' classroom management can be observed. Only one measure (Mean<sub>SSL</sub> for discipline) is beneath the scale mean of 2.5.

Analyses of Variance

Based on the estimated person measures, a multivariate analysis of variance (MANOVA) showed significant main effects for classroom management between all types of schools, \(F (2, 2657) = 64.71, p < .001\), partial \(\eta^2 = .07\). Previous analyses showed, however, that there seem to be three dimensions within the questionnaire.
about classroom management, so in the following paragraphs, results of subsequent univariate analyses of variance will be presented.

**Student Perception of Discipline in Physics Lessons**

Subsequent univariate analyses of variance showed significant main effects for discipline at the different school levels. \( F(2, 2657) = 4.18, \ p < .05, \) partial \( \eta^2 = .003 \) (see Fig. 3).

![Figure 3: Comparison of Means of Perceived Discipline by Type of School](image)

There are no significant differences in perceived discipline in physics lessons between elementary and secondary school students. Within the secondary school students’ sample, there are differences: Students who attend schools for higher achievers describe the discipline in their science lessons significantly more positive than students who attend secondary schools for lower achievers (\( p < 0.05 \)).

**Student Perception of Rule Clarity in Physics Lessons**

Subsequent univariate analyses of variance showed significant main effects for rule clarity at the different school levels. \( F(2, 2657) = 148.36, \ p < .001, \) partial \( \eta^2 = .11 \) (see Fig. 4).
There are significant differences in the perception of rule clarity between all types of schools. Elementary school students describe rules and rituals as present and understandable in a significantly more positive way than secondary school students do ($p < 0.05$ and $p < 0.001$ respectively). Secondary school students who attend schools for lower achievers describe rule clarity in their science lessons significantly more positively than students who attend secondary schools for higher achievers ($p < 0.001$).

**Student Perception of Prevention of Disruption in Physics Lessons**

Subsequent univariate analyses of variance showed significant main effects for prevention of disruption at the different school levels. $F(2, 2657) = 136.50$, $p < .001$, partial $\eta^2 = .10$ (see Fig. 5).
For the scale concerning prevention of disruptions, significant differences were once again found between all types of schools. Elementary school students describe the preventive behavior of their science teachers significantly more positively than students from secondary school (p < 0.001). The difference between the perceived prevention of disruptions in the two different types of secondary schools is also significant (p < 0.001). Students from secondary school type I (lower achievers) perceive the prevention of disruptions in their science lessons significantly more positively than students from secondary school type II do.

6. DISCUSSION AND PROSPECT

The data analyses show that discipline, rule clarity and prevention of disruptions represent three dimensions of the classroom management construct. Although students who attend a secondary school for higher achievers perceive their physics lessons as quiet, to cite a positive example, they do not have the impression that their teachers always know what is happening in the classroom when they are busy with individual students, nor do they feel that their teachers appropriately react to disruptions when they occur. They are also unclear about rules, rituals and consequences for breaking rules. The results indicate that findings from previous studies suggesting that managerial skills vary between teachers and groups of teachers (depending on school stage) may be valid. This holds true for the author’s assumption that reasons for it can be found in their educational backgrounds and professionalization during teacher training. Still, the results need to be correlated with the more objective view of teachers’ classroom management via video analyses before interpretations can be more precisely drawn.

Due to the student questionnaire study’s encouraging results, the quality of the video coding can be analyzed by comparing it with student perceptions. This can help improve the quality of classroom management’s operationalization, and makes available an efficient observation instrument for teachers’ classroom management.

Further analyses of relations between student achievements and classroom management confirmed that a connection does exist (unpublished results). A subsequent step will be to compute whether a teacher needs to have high positive measures on all three constructs simultaneously, or if, for instance, it is not important to set up a system of rules and rituals as long as the teachers give the impression that they know about everything that is going on and have ‘eyes on the back of their heads’.

By identifying central, observable factors of classroom management within this study, the findings can be used as a basis for fostering further professional teacher development concerning effective classroom management. This could contribute to more strongly ensuring students’ learning success and to better facilitating and supporting teachers’ work pressure; after all, teachers are required to address myriad issues while attending to up to 30 students’ needs. Last but not least, this includes the reflection on the balance of “giving attention to guidance and structure, but also focusing on the development of independent learners and young democratic citizens” (Metzger, 2005, p. 13).
7. References


