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Promoting Commitment: The Influence of School Culture and Work-Related Emotional Variables on the Affective Commitment of Teachers at German All-Day Schools

Karsten Wutschka, Karin Lossen

Abstract: A variety of reform and development efforts in the German educational system, especially the extension of the school day, going along with an increasing autonomy of individual schools and extending demands on teachers led to growing interest in business science concepts being applied in the field of school development research. A main emphasis lies in the commitment of teachers who are responsible for the implementation and the success of these reforms. The aim of this paper is to identify reasons that lead to a high level of commitment of the teaching staff with a focus on German all-day schools. The intended results will be obtained by a structural equation model based on the information provided by 649 primary all-day school teachers. In addition to the relationships with other actors in the school, which are summarised under the heading of school culture, variables relating to the personalities of the teachers can be identified as predictive.

Keywords: Teacher, Commitment, Leadership, School Culture, All-Day Schools

Introduction

Since the beginning of the 21st Century the expansion of German all-day schools has been promoted extensively, not least because of the disappointing results of international student assessments such as PIRLS, TIMSS and PISA (Baumert et al, 2001; Mullis, Martin, Gonzalez & Kennedy, 2003; OECD 2001, 2003). Traditionally, the school day in Germany ended between noon and 1 pm in primary and secondary schools. These schools are labelled as “half-day schools” in contrast to schools with an extended extracurricular program, which are called “all-day schools”, which also cover the afternoon. (KMK – The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, 2002). According to public and educational policy discussions, the goals of implementing all-day school programs are very challenging, as the following list illustrates: improving subject-related competencies and key skills, promoting individual development by offering differentiated learning opportunities, qualified supervision to support families, providing a space for socialization to improve social integration and cultural orientation, extending the socio-cultural infrastructure and raising equity of education (Holtappels & Rollett, 2009). In 2002, only 16.3 percent of German schools were operating as all-day schools. By 2020, this percentage had risen to an impressive 71.5 percent (KMK, 2006, 2021). So, in every year of this period the percentage of all-day schools rose by 3.1 points on average. More than 19,000 of the schools in Germany today offer an all-day program to their students (own calculations based on the KMK 2021). This development was driven by a broad public

discussion about how to improve the outcomes of the school system in Germany, a massive financial investment by the German government and the federal states of Germany, and a rising demand of families for day care for their children. The KMK distinguishes between three types of schools: 1) *Fully compulsory* all-day schools where all students have to take part in the all-day program for at least three days a week; 2) *partly compulsory* all-day schools in which students of certain grades or classes have to participate for at least three days a week; 3) *voluntarily* all-day schools where an all-day program is provided for at least for three days and students have the option to enrol. The most widely encountered type is the voluntarily model, especially for elementary schools. Due to a teacher shortage in general and the broader pedagogical functions for the extended extracurricular program, additional staff with pedagogical qualification conduct the all-day part of school life in most schools. Therefore, teachers' active involvement and participation in conducting the extracurricular programs vary a lot regarding the intensity and often results from personal interest and engagement.

Furthermore, the German school system has been coined by several procedural and developmental changes, which are complemented by an increasing degree of autonomy of the individual schools (cf. Rürup, 2007). These changes and the accompanying effects they have on teachers have not yet been subject to many studies (cf. van Ackeren, Klemm, & Kühn, 2015; Terhart, 2013).

Theoretical Framework

School reforms and its implementation are mostly driven by the teachers, which increases their workload and challenge their existing practices (Day & Smethem, 2009). Extending the school day leads to various changes concerning the whole organization of the individual school as well as teachers' professional responsibilities. Regarding German all-day school teachers face different changes in their work, such as being involved in the planning and organization of the all-day program or the extracurricular activities. The teachers have to cooperate not only with their teaching colleagues, but also with the additional pedagogical staff and partly actively engaging, for example, in the extended school program by conducting an extracurricular activity.

Looking at the development of the theoretical and empirical discourse, commitment, which has been adapted from work and organisational psychology (see Harazd et al. 2012; Felfe, & Six, 2006; Canrinus, Helms-Lorenz, Beijaard, Buitink, & Hofman, 2012; Webs, 2016; Abd Razak et al. 2010), gained attention and has become more relevant for the analyses when examining teachers. Commitment describes a personal and emotional bond between an individual and an organization (cf. van Dick, 2017), which is said to have a beneficial effect on the performance and motivation of teachers (cf. van Dick, 2004; Gautam, Van Dick, & Wagner, 2004). Thus, the construct becomes one of the decisive variables regarding participation in, acceptance of and internalisation of school development processes and their results. The relevance of commitment can be emphasized especially with regards to the school system, since there are no possibilities to set incentives for the school management and since teachers, due to their semi-professional position, only have rudimentary contact with the organization as a whole and rather act as individual workers (cf. Rolff, 2012; Blutner, 2004). Commitment

to their school becomes even more important for teachers when facing fundamental changes as the extended school day and therefore new challenges as well as modified work content and environment, due to their key role in realizing educational changes successfully (Van der Heijden, Geldens, Beijaard, & Popeijus, 2015). The aim of this contribution is to analyse how school leadership, school culture and personal variables influence the commitment of teachers and examine differences in causal relationships between teachers who actively participate in all-day schools and those who do not (Figure 1). For this purpose, data from the StEG-study (study on the development of all-day schools), which deals with the development of German all-day schools, will be used.

Teachers Affective Commitment as Decisive Factor

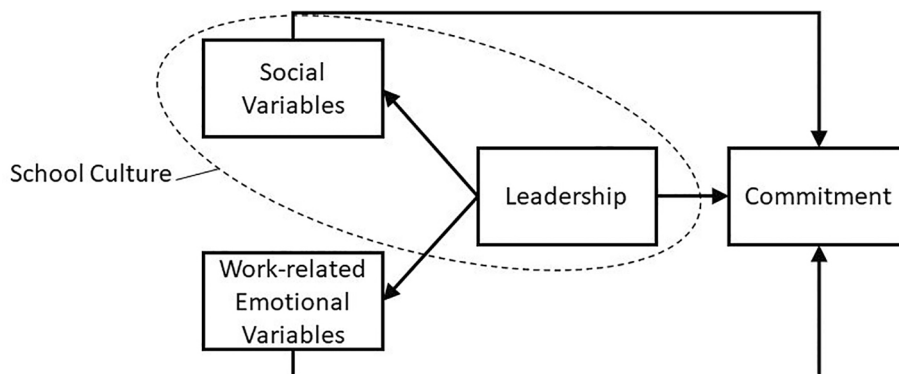
Teachers face numerous challenges in their daily work and are confronted with permanent potential stress situations, e. g., due to the large number of pupils in a single class and public pressure on their performance (cf. Day, & Gu, 2010). In addition, school development efforts have a significant impact on their daily work and force them to change their usual practice (cf. Park 2005; Jo, 2014). Especially for the German school system, the poor performance in international comparative studies is decisive for these development processes. Therefore, changes are oriented towards increasing the performance of the pupils and consequently the work output of the teachers. In the German school system, the large-scale implementation of all-day schooling is a prime example of these reform efforts. The teachers thus become a dependent variable in school development processes (Heinrich, & Altrichter, 2008, p. 206). A crucial factor for the success of these school development processes, however, is the acceptance of the teachers and the adoption of the innovations in their everyday work. This is particularly important because the successful implementation of reforms often requires additional work from teachers (cf. Mitchel, & Sackney, 2011). Due to the development of the individual school as an organizational unit, there are many variations in the implementation of the innovations. At the same time, individual school variables come into the focus of the accompanying research, which then often refers to variables that originate from business management research. One concept that stands out is the commitment, which describes the identification of individuals with a specific organization.

According to Meyer and Allen (1991), the concept of commitment can basically be broken down into three sub-aspects: Individuals with a high *affective commitment* take emotional aspects into account and build a personal bond with the organization. The *normative commitment*, on the other hand, is based on moral-ethical feelings and is justified by an alleged obligation to the organisation in return for an education, or similar. The concept of *continuation-related commitment* describes purely rational motives which lead to individuals remaining in the organization. These include a lack of alternatives on the one hand and costs that would be associated with leaving the organization on the other hand (van Dick, 2017, n.n.). In the context of this work, the conceptual focus lies within the *affective commitment*. The partial aspects of *normative* and *continuance-related commitment* are not considered, since German teachers do not tend to switch schools once they are hired, which is mainly due to their civil servant status. Furthermore, a normative justification does not apply due to the bureaucratic equality of the individual schools and a formula-contractual employment with the state (cf. Blutner, 2004, Rolff, 2012).

The (emotional) bond that teachers with a high affective commitment build with their school goes far beyond basic membership. They “may have strong psychological ties to their school, their students or their subject matter” (Somech, & Bogler, 2002, p. 556). In a further step the current research discourse differentiates between organizational and professional commitment. While teachers with a high level of professional commitment direct their commitment towards the practice of teaching and the content of the subject, organizational commitment is based on an emotional attachment to the school as a whole (cf. Mowday, Seers, & Porter, 1979; Weick, & McDaniel, 1989). In this context, it is crucial how the organisation manifests itself in the teachers’ perceptions. The morning and all-day areas of the German school system are often subject to differentiated considerations and differ regarding the tasks and intensity of certain relationships of the teachers (cf. Rothland, & Biederbeck). This results in the possibility that teachers who are actively involved in the all-day sector and teachers who are not differ in their conception of the school as an organization. Thus, they would build their commitment to differently perceived images of the organisations. Not least for this reason, the focus of this paper is on organisational commitment. This form of affective commitment is associated with a variety of positive effects, for example, on the cooperation in and acceptance of reforms or on the work performance and motivation of teachers in general (see Geisjel, Slegers, Leitwood, & Jantzi, 2003; Day, 2008; Park, 2005).

While there is a large consensus of research on the relevance of teacher commitment, recent studies have focused on the identification of important conditions for the emergence and persistence of teacher commitment. Variables that have a potential influence on teachers’ commitment can be separated into two groups. First, there are variables that concern the personality of individual teachers. These include, above all, psychological variables that affect the daily work routine: for example, stress, self-efficacy, and job satisfaction (see Bogler, & Nir, 2015). On the other hand, the working environment, and thus especially the culture of the school, plays a decisive role (see Belias, & Koustelios, 2014; Huang, & Waxman, 2009). While previous studies have focused on individual aspects, the analyses in this paper will apply a broader approach, including personality-specific variables as well as aspects of school culture and hence the relationship between different members of the individual school.

Figure 1. Visualization of theoretical causal relationships.



Special interest is given to school leadership. Particularly because of the increased autonomy of the individual school, school leadership is given an important role. Numerous studies

attribute to it a decisive function for the climate within the teaching staff and also underline the important role of school leadership for emotionally affective variables of the individual teachers and direct effects on teacher commitment (see Dou, Devos, & Valcke, 2017; Hulpia, Devos, & Rosseel, 2009). In the following sections, the related variables are presented in a theoretical context and their relevance is explained. Then, the analytical concern is contextualised in the current state of research.

Work-Related Emotional Variables: Self-Efficacy, Stress, Job Satisfaction and Enthusiasm

The everyday working life of teachers is characterized by many different competence requirements (cf. Rothland, & Terhardt, 2007), which can potentially lead to individual perceived stress (cf. van Dick, & Stegmann, 2007; Klassen, & Chiu, 2010).

As van Dick and Stegmann (2007) point out, a distinction can be made between objective and subjective stress: Objective stress is first and foremost everything that affects the teacher in the form of working tasks and working conditions. "Through the process of reflection objective stress can be transformed into the subjective stress" (cf. van Dick, & Stegmann, 2007, p. 35, translated). The process of reflection depends on individual competences and sensibilities of each teacher. The ability to successfully deal with stressful life circumstances is referred to as resilience, which is defined as a dynamic process of adaptation and development (cf. Wustmann, 2004). Resilient individuals can personally develop by handling stressful situations successfully (cf. Welter-Enderlin, 2006) and are often characterized by high expectations of self-efficacy. According to Abele (2011), self-efficacy expectations are assumptions about whether and to what extent one's own abilities and motivation are sufficient to cope with upcoming tasks (Abele, 2001, p. 678). "Positive expectations and a positive self-concept can moderate the process of stress processing through evaluative, emotional, physiological and behavioural reactions" (cf. Schwarzer, & Jerusalem, 2002, p.29, translated). This leads to the assumption that teachers with high self-efficacy are significantly less likely to be affected by stress symptoms than colleagues who have low self-efficacy.

Both previously described constructs are theoretically and empirically strongly related to job satisfaction, which "is the emotional state resulting from perceiving one's job as fulfilling or allowing the fulfilment of one's job values" (Dou, Devos, & Valcke, 2017, p.963). According to Felfe and Six (2006) "the central facets include the work activity itself, working conditions, leadership, salary, etc." (cf. Felfe, & Six, 2006, p.40, translated).

As a further personality-specific variable, the enthusiasm of teachers will be considered in this paper. According to Kunter, Frenzel, Nagy, Baumert and Pekrun (2011), enthusiasm is an affective construct that can be assigned to the domain of positive emotions and intrinsic motivation. Enthusiasm describes affective, person-related characteristics that reflect the excitement, fun and pleasure of the individual teacher and manifests itself in certain behaviors (cf. Kunter, Frenzel, Nagy, Baumert, & Pekrun 2011). This enthusiastic behavior behalf of teachers can, for example, be oriented towards the activity of teaching or the content of a specific subject (cf. Kranich, 2019). In the context of this paper, the enthusiasm towards the all-day sector and the accompanying new activities – concerning the new organizational type of the school – that intervene in the teachers' everyday work is discussed.

School Culture

As previously demonstrated in numerous papers, no universal definition of school culture can be found in the current research discourse. This can, among other things, be attributed to the large number of terms and constructs included (see Helsper, 2008; Fuchs, 2009; Holtappels, 1995). Therefore, Luhmann (1995) describes the term culture as a “bad term” that lacks the conciseness required for scientific terms (cf. Luhmann, 1995). It is important to generate such conciseness in light of the concern of this paper.

Holtappels (1995) understands school culture as “the content orientation, quality and organization of the pedagogical resources of each school” (cf. Holtappels, 1995, p.11, translated). In the 2003 German Education Report, school culture is referred to as “the sub-institutional structure of a school, which is next to official objectives and manifests itself in the regularity of thought, feelings and actions in social processes” (cf. Bildungsbericht, 2003, p.135, translated). Helsper (2000) describes school culture as “symbolic, sense-structured orders of individual schools, which are shaped by the school actors and their confrontation with external structural specifications” (Helsper, 2000, p.35, translated). As the greatest commonality of the various interpretations, Fuchs (2009) with reference to Helsper (2008), focuses on communication and activities. One example specifically refers to the actions of the individuals who are “involved in school significantly and the interaction with others, as well as the normative, culturally-theoretically framed determination of these actions and interactions through shared values, (unwritten) rules etc.” (Fuchs, 2009, p.371, translated). The results of this paper will be interpreted accordingly. As Rolff (2012) points out, the key players in schools include “teachers (other pedagogical staff, especially in all-day schools), school administrators (in combination with authorities) and pupils (in combination with their parents)” (Rolff, 2012, p.1009, translated). Little attention has been paid to the latter group in the context of the organizational view of the school, as they are often not considered members of the organization. Thus, popular statements regarding school culture – as Bennewitz, Breidenstein and Meier (2015) point out – only refer to professional school actors and focus on pedagogical action (cf. Bennewitz et al., 2015). In the context of the present study, students should also be considered regarding interaction mechanisms in schools. Starting with the school leadership, the relationship of the teachers to the other actors in the school is theoretically substantiated.

School Leadership

Observing school leadership in an empirical context is a more recent field of research. Its origins can be traced back to work and organizational research (see Burns, 1978, Bass, 1985, Felfe, 2006). Due to the increasing autonomy of individual schools, school administrators are taking on the role of managers in the sense of labour science more and more. Thus, they gain importance in empirical educational research. According to Leithwood, Harris and Hopkins (2008) “leadership acts as a catalyst without which other good things are quite unlikely to happen” (Leithwood, Harris, & Hopkins, 2008, p.2).

In recent years, the model of transformational leadership has emerged from many theoretical frameworks on leadership behavior of school leaders. This is mainly due to the focus on the methods teachers improve their work and enhance student performance. (cf. Stewart, 2006). This concept is based on the work of Burns (1978). “The transforming leader looks for

potential motives in followers, seeks to satisfy higher needs and engages the full person of the follower” (Burns, 1978, p.4). Firstly, Bass and Avolio took up this basic definition of successful leaders (Bass, & Avolio, 1988; Bass, 1998). Later numerous authors adapted it to the field of empirical school development research. Accordingly, charisma, inspiration, intellectual stimulation, and individualized care are attributed to successful school leadership. Transformational school administrators succeed when they act as identification figures for the teachers by conveying visions and establishing common goals in participation with the teachers. However, they do not remain in established patterns of thought they rather are open to innovation and encourage their staff to show effort in this respect. These school leaders know how to bring together the entire teaching staff in a motivating manner as well as how to respond to the needs of their individual employees to emphasize and be appreciative of their performance (cf. Wunderer, 2006; Neuberger, 2002; Schmerbauch, 2017; Leithwood et al., 2008; Stewart, 2006). According to Brauckmann and Eder (2019), the school leader acts as a role model by representing the common values and creating a high degree of transparency. Thus, stimulating the employee’s commitment to the organization (cf. Brauckmann, & Eder, 2019). Based on theoretical findings, it is possible to assume, with respect to later analyses, that leadership action has a wide range of effects on a variety of quality dimensions of the school.

Social Variables: Collegial Cohesion, Teacher-Pupil Relationship and School Climate

As has been shown, the school culture is based, among other things, on the interactions of the members and the values lived in the organization. These relationships contribute significantly to the school environment and thus influence the teachers’ affective organizational commitment. Therefore, specific constructs of perceived quality dimensions of these relationships should be considered as well.

The first thing to look at in this regard is the relationship between the teachers. A strong collegial cohesion, which in the field of economics is often referred to as a positive working atmosphere (cf. Dziarnowski, & Schütze, 2007), functions not only as an indicator of agreement on company issues but also presents itself in the shown mutual respect, the willingness to trust others, come to agreements, reflection on one’s own role and a fundamental willingness to discuss and compromise on crucial issues (cf. Huber, & Ahlgrimm, 2008). Looking back on the remarks on stress of individual teachers, conflicts, and disagreements as well as an associated poor climate within the teaching staff can also be a cause of the emergence of symptoms of stress. There is a well-founded assumption that “a collective (such as a teaching staff) will also be more successful in overcoming challenges if it is supra-individually conceived of the group’s ability to act” (Schwarzer, & Jerusalem, 1999, p.85, translated).

In addition to contact to other colleagues, teachers interact with pupils during their everyday work, who are also members of the school (cf. Rolff, 2012). Since a large part of the teachers’ professional activity consists of teaching, the contact with pupils is much more extensive. During school hours, teachers are exposed to permanent evaluation processes by the pupils, which can have an impact on the teacher’s well-being (Tacke, 2004). Since pupils generate a large part of the organization, the teacher’s relationship to them should be integrated into the analyses as a relevant construct to determine commitment. We assume that

this aspect becomes even more relevant for teachers who are actively involved in all-day activities, since their relationship with pupils goes beyond normal teaching contact.

The involvement of all other relevant groups is summarized under the term school climate. As Jäger (2012) notes under reception of Halbheer und Kunz (2011), there is no clear definition of the term school climate. Rather, “the demarcations of the different terms seem diffuse” (Jäger, 2012, p.66, translated). According to Bessoth and Weidel (2003), the school climate can be regarded as part of the school’s culture, which is used as a framing construct in the course of this work. Thus, school climate can be described as “culture in practice” (cf. Bessoth, & Weidel, 2003). In the context of this paper, the construct of the school climate is compressed of a basic subjective evaluation of the interaction and behavior of the following members of the organization: teachers, pupils, and parents. Thus, the relationship structure among teachers and the relationship between teachers and their students, which was investigated during collegial cohesion and teacher-pupil relationship, is supplemented by the parents’ involvement.

In summary, it must always be considered, that these constructs capture a subjective perception of cultural aspects which does not necessarily correspond to real conditions (cf. Fend, 1998). Since the commitment refers to individual assessments as well, there are no further concerns.

State of Research

Harazd, Gieske and Gerick (2012) have already dealt with the adaptation of the concept of commitment from the private sector to the field of school development research. During their analyzes Harazd, Gieske and Gerick (2012) examine the question which factors influence the affective commitment of teachers and find effects for several thematically relevant constructs. In addition to the spatial configuration, significant influences can be calculated especially for aspects of the leadership action of the school administration (transformational leadership/participation). Furthermore, the theoretically derived relevance of the working climate could be statistically confirmed. Although the above-mentioned findings were collected within the framework of a cross-sectional analyzes, the authors were able to present plausible causal effects. Regarding the research objective of this paper, the results obtained can be verified in a longitudinal modelling.

Jo (2014) also looks at the influence of relationships with colleagues, school leaders and pupils on teachers’ commitment. He uses positive emotions of teachers (e.g., enthusiasm or pride) as mediators. The study reveals direct positive effects of relationships with colleagues and school leadership on teachers’ commitment. Indirect effects via the positive emotions are found for the relationship with the students and the school leadership. Yang, Badri, Al Rashedi and Almazroui (2019) also report direct effects of relationships with colleagues and school leadership. Meredith et al. (2022) confirm the significant influence of collaboration with colleagues on teachers’ commitment.

Felfe and Six (2006) focus their research on the private sector and deal with the constructs of job satisfaction and commitment. Since they only have cross-sectional data, no conclusive statement can be made about the relationship between the two constructs, so a correlate is

assumed. The longitudinal research design of the present study opens the possibility to take a closer look at the underlying causality. Felfe, Schmook and Six (2006) cite work climate and the concept of transformational leadership as additional factors relevant to expressing job satisfaction and commitment. They refer to several meta studies (see Felfe, Schmook, & Six, 2006). In the school context, the significant influence of job satisfaction on affective commitment can be supported by the findings of Tanriverdi (2008).

The influence of self-efficacy and job satisfaction on teachers' commitment is the topic of Canrinus' et al. (2012) study. The researchers can reveal a direct significant effect of self-efficacy on affective commitment and model mediation through job satisfaction, which was illustrated by two subscales. Thus, the theoretically assumed influence of the teachers' work-related emotional variables on affective commitment can be substantiated.

Collie, Shapka and Perry (2011) look at the influence of cultural aspects on teacher commitment using a data basis comprised of 664 teachers employed from kindergarten to grade 12. Like the data base used in this paper, which will be presented in more detail later, a large proportion of the participants (80%) are female. The authors find a dominant effect for student relations that is significantly higher than the influence of cooperation between teachers. As has been mentioned in the theoretical paragraphs the students as members of organizations will also be considered in this study. The findings of Collie, Shapka and Perry (2011) support this aim.

As has been pointed out, there is already some research on commitment that relates the construct to relevant factors. In many cases, however, these are only based on cross-sectional data or only a selection of independent variables was used. The aim of this work is to link teachers' commitment to all theoretically and empirically relevant factors to look at several paths of influence. Furthermore, longitudinal data are available for this purpose.

Hypotheses

Based on the previous explanations, the main goal of the work is to explain the development of teachers' affective commitment and thus their emotional attachment to the school organization with particular focus on their active involvement in the extended school day. Are personal factors, school cultural conditions and the actions of the school management decisive for the manifestation of affective commitment?

1. The affective commitment of teachers to their school is influenced by the work-related emotions. (H 1)
2. The strength of commitment is determined by school culture factors, which relate to
 - 2.1 the teaching staff and the interaction with students and their parents. (H 2.1)
 - 2.2 the leadership of the school administration. (H 2.2)
3. The leadership of the school management has an indirect effect on the affective commitment of the teachers, mainly due to other aspects of the school culture. (H 3)

As already mentioned in the theoretical part, the tasks, activities, processes, and interactions of teachers in the all-day sector differ clearly from those in the forenoon sector (cf. Rothland, & Biederbeck, 2020). Theoretical considerations suggest that the image of the school as an

organization also differs between these two groups. Since commitment is built on individual perceptions of an organization, we explore this hypothesis by analyzing both groups separately.

4. Regarding the interplay of individual mechanisms of action, differences in the effects can be identified between teachers who are actively involved in all-day activities and those who are not. (H 4)

Methodology

To verify the hypotheses presented, a structural equation model will be applied. This model is based on the information provided by teachers who were surveyed in the second project phase of the study on the development of all-day schools (StEG).

Sample

The basis for the following analysis consists of data from the longitudinal study ‘StEG-P’ (Study on the development of all-day schools – Quality of extracurricular activities and individual effects in all-day primary schools¹), which was collected at four different measuring points throughout the years of 2012 and 2015 (Lossen, Tillmann, Holtappels, Rollett, & Hannemann, 2016; Rollett, Lossen, Holtappels, & Tillmann, 2020). All schools included in this study were German all-day primary schools. The aim of StEG-P was to evaluate the effects of participation in three forms of extracurricular activities (reading, natural science and social learning) in well-established all-day schools. The schools were picked from a representative German school monitoring survey for all-day schools in 2012 (StEG-consortium, 2013). A full survey of all teachers was conducted at the second and the fourth measurement point. The Commitment of teachers was taken from the fourth measurement point to ensure the causality of the effects. Overall, data from 842 teachers was collected. Of these, 288 say they are actively involved in the all-day sector and 361 teachers report that they are not. Since the resulting groups are part of the planned analyses, the new sample size for the calculations is 649. The average age of the teachers in this sample is 43 years. About 90 % of the subjects are female.

Instruments

To be able to classify the teachers’ commitment in a multi-layered context of effects, several constructs are used in the analysis. On the one hand, the personal work-related emotions of the teachers can be considered. On the other hand, the perceived quality of the school culture is included. The constructs used can be taken from the following table. All items were measured by a four-point Likert scale.

1 This research was funded by the German Federal Ministry on Education and Research. The authors are responsible for the content of this article.

Table 1. Overview scales

Scale (items)	Example item	M (SD)	Cronb. α	Source
Commitment (6)	<i>I believe that my values and those of my school are very similar.</i>	2.327 (.595)	.907	PERLE
Job satisfaction (6)	<i>I am satisfied with my job as a teacher.</i>	2.409 (.456)	.750	TIMMS/ IGLU (2011)
Collegial cohesion (7)	<i>There is a good community spirit in our school.</i>	2.229 (.508)	.869	StEG I
School climate (7)	<i>Parental involvement in school activities.</i>	1.834 (.443)	.841	TIMMS/ IGLU (2011)
Self-efficacy (6)	<i>I can also get in good contact with problematic students if I make an effort.</i>	2.072 (.381)	.689	StEG I
Stress (6)	<i>Besides my professional activities, I still have enough time for family and hobbies.</i>	1.403 (.611)	.868	StEG I
Enthusiasm for all-day schools (4)	<i>I find the work in all-day schools exciting and try to convey this to the students.</i>	1.946 (.676)	.851	COACTIV
Teacher/Student relationship (5)	<i>Most teachers are interested in what the students have to say.</i>	2.597 (.370)	.792	StEG I
G-factor leadership competence of the school management				
Management competence (5)	<i>The school management of our school sets a good example for the teachers in their commitment.</i>	2.450 (.485)	.819	StEG I
Moderation and participation competence (9)	<i>The school management of our school has a lot of empathy for the problems of the staff.</i>	1.946 (.676)	.899	StEG I

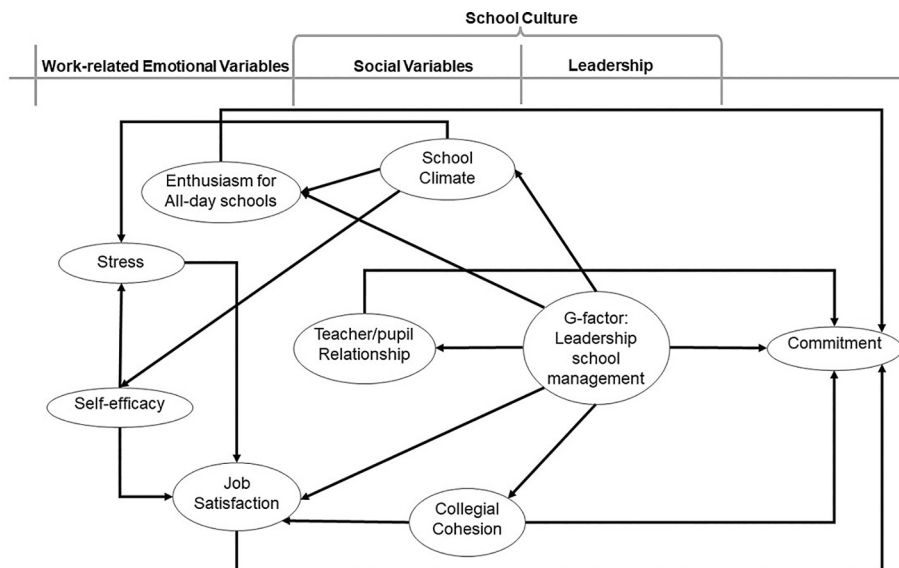
StEG-P (N=842): 1=not applicable at all; 2=rather not applicable; 3=rather applicable; 4=fully applicable.

Conceptual Framework

Regarding the theoretical foundation and the reception of the empirical findings, numerous patterns of impact are assumed. These are visualized in the following diagram. By modelling several regressions within the structural equation model, it is possible to report indirect effects. Due to the high correlation and content-based similarities the leadership competence of the school management was modelled as a g-factor. Concerning the theoretical foundation, the commitment can be described as a very invariable construct. Hence, no initial position was included in the model.

The fundamental goal of the analyses, explaining teachers' commitment, is to place this construct in a far-reaching causal context. In addition, there is a great deal of research interest

Figure 2. Visualization of the analytical framework.



in distinguishing teachers who are actively involved in all-day school activities and their counterparts. For this purpose, a grouped structural equation model was computed, which outputs group-specific regression coefficients for the variables used. For the realization, the statistics program R, and the implemented package Lavaan from Rosseel (2012) were used. Regarding the grouping of the structural equation model, the measurement invariance was checked using χ^2 difference tests and the criterion $\Delta CFI < .01$ (cf. Cheung, & Rensvold, 2002). Based on the results, strict measurement invariance can be assumed, so that factor loadings, intercepts and residuals were set equal between the groups.

Since certain groups of teachers can be classified according to their school affiliation, a complex sample was declared in the calculations, so robust standard errors were estimated. All relevant constructs were modelled latently. School leadership competence was originally mapped in the StEG scale manual in the form of two individual factors – moderation and participation competence and management competence. Due to their high correlation, a g-factor – leadership competence of school management – was used during this model. All reported effects are standardized values. Missing values were estimated using FIML (Full Information Maximum Likelihood), resulting in a total group-specific number of subjects of 361 (no all-day involvement) and 288 (all-day involvement). In view of the large number of constructs used, satisfactory fit values were achieved with $RMSEA = .038$, $CFI = .913$ and $TLI = .905$ (cf. Kline, 2016; Bentler, & Bonnet, 1980; Hair et al., 2010).

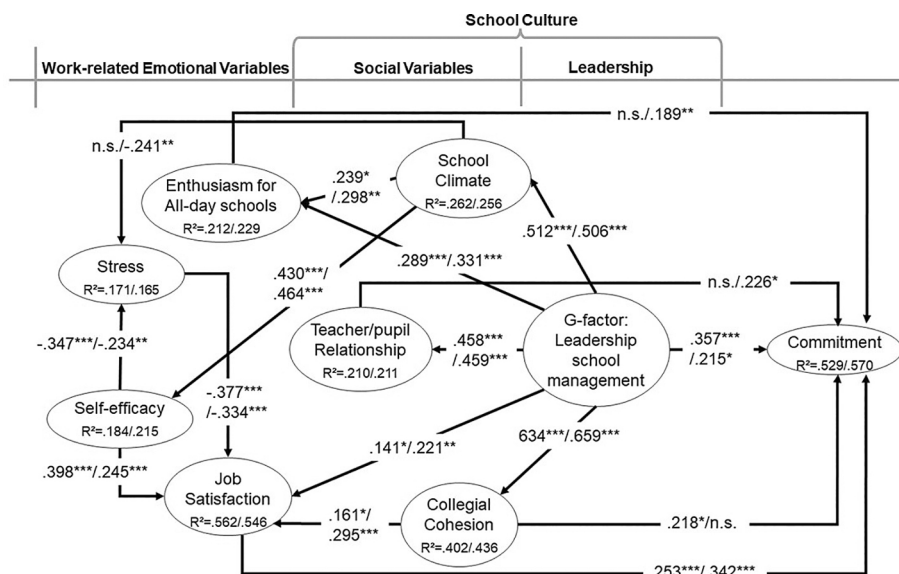
Results

With a first look at the results, a high level of variance explanation for commitment can be reported overall ($R^2 = .529/.570$). For the joint presentation of the individual effects of the two

groups, equivalent to the graphical representations, the following format is used: (β group 1 / β group 2).

A significant influence for the work-related emotional variables (H1) on teachers' commitment is found only for enthusiasm for all-day schooling ($\beta = \text{n.s.}/.189$, $p < .01$) and job satisfaction ($\beta = .253$, $p < .001/.342$, $p < .001$). However, job satisfaction is influenced by the other work-related emotional variables of self-efficacy ($\beta = .398$, $p < .001/.245$, $p < .001$) and strain ($\beta = -.377$, $p < .001/-.334$, $p < .001$).

Figure 3. Visualisation of the analysis results



StEG-P (N=649): Group 1 (N=361) = no all-day involvement; Group 2 (N=288) = all-day involvement; (Group 1/ Group 2); * $p < .05$, ** $p < .01$, *** $p < .001$ RMSEA=.038; CFI=.913; TLI=.903.

When school culture variables (H2.1) are examined, significant effects can be reported for collegial cohesion ($\beta = .218$, $p < .05/\text{n.s.}$) and for relationships with students ($\beta = \text{n.s.}/.226$, $p < .05$) depending on the group. In contrast, no statistically significant effect can be found for school climate. Because school climate has a significant effect on enthusiasm ($\beta = .239$, $p < .05/.298$, $p < .05$) and self-efficacy ($\beta = .430$, $p < .001/.464$, $p < .001$), and collegial cohesion has a positive effect on job satisfaction ($\beta = .161$, $p < .05/.295$, $p < .001$), indirect effects can be assumed for both constructs. Looking at school leadership (H2.2) behavior ($\beta = .357$, $p < .001/.251$, $p < .05$), significant effects on teachers' affective commitment can again be identified for both groups.

For school leadership behavior, multiple influences on other variables of the model are also identified (H3). In this way, school leaders can influence collegial cohesion ($\beta = .634$, $p < .001/.659$, $p < .001$), job satisfaction ($\beta = .141$, $p < .05/.221$, $p < .01$), teachers' relationship with their students ($\beta = .458$, $p < .001/.459$, $p < .001$), teachers' enthusiasm for all-day

schooling ($\beta = .289$, $p < .001/.331$, $p < .001$), and school climate ($\beta = .512$, $p < .001/.506$, $p < .001$) positively.

Table 2. Overview direct and indirect effects

Causal relationship	<i>Effect direct</i>		<i>Effect total</i>	
	Group 1	Group 2	Group 1	Group 2
Leadership competence Commitment	.357***	.215***	.531***	.458***
Collegial cohesion Commitment	.218*	n.s.	.259*	n.s.
Job satisfaction Commitment	.253***	.342***	.253***	.342***
Student/Teacher Relationship Commitment	n.s.	.226*	n.s.	.226*
School climate Commitment	-	-	-	.123**
Enth. for all-day schooling Commitment	-	.189**	-	.189**
Stress Commitment	-	-	.095**	.080**
Self-efficacy Commitment	-	-	.114**	.111**
<i>R</i> ²			.529***	.570***

StEG-P (N=649): Group 1 (N=361) = no all-day involvement; Group 2 (N=288) = all-day involvement; * $p < .05$, ** $p < .01$, *** $p < .001$.

Due to the various causal relationships, indirect effects could be calculated for some constructs in the structural equation model. These and all direct effects on commitment are listed in the table below.

Discussion and Conclusions

During the analyses, it is possible to explain a large part of the variation in the commitment of teachers. In the first hypothesis (H1), a positive influence of work-related emotional variables on teachers' affective commitment was assumed. These variables include the constructs of self-efficacy, stress, job satisfaction, and enthusiasm for the all-day program. Statistically relevant direct influences on affective commitment can only be obtained for job satisfaction for both groups, with and without active involvement in the extended school program, whereby the enthusiasm for the all-day schooling only influences commitment for the second group. Self-efficacy and stress could be identified as predictive variables for job satisfaction, which means they have an indirect effect on affective commitment. The first hypothesis (H1) can thus be confirmed. Work-related emotional variables make an important contribution to teachers' affective commitment. These results correspond with the findings of Felfe, Schmook, and Six (2006), Tanriverdi (2008) and Canrinus et al. (2012), which were reported in the review of the research. The analyses in this paper succeed in further describing the impact processes underneath the work-related emotional variables. The joint influence of self-efficacy and stress on job satisfaction has already been assumed with reference to the concept of resilience in the theoretical part. As described, the perception of stress and one's own self-efficacy is a very subjective process, which is why it can be concluded that job satisfaction is

largely based on individual personal characteristics and the ability to cope with everyday work as a teacher. This process can be continued through the indirect and direct effects on the commitment of the teachers. The ability to deal with demanding work situations becomes particularly relevant when looking at the implementation of the all-day. The multitude of new tasks, work processes, new employees and goals fundamentally change the everyday work of teachers and lead to unfamiliar demanding situations, which can result in new and greater stress. It is therefore crucial to support teachers during this challenging period of reform by increasing their confidence in their abilities and minimizing their workload as much as possible. Important components in this goal are school cultural factors, which are focused in the second hypothesis (H2).

Important variables of the school culture are the relationships with colleagues, students, and parents. These are addressed in the first sub-hypothesis (H2.1). No direct effect on affective commitment can be found for school climate. Rather, this construct functions as a factor for the work-related emotional variables self-efficacy and enthusiasm for the all-day area. For at least one of the examined groups, the relationship to colleagues and to students has a statistically relevant influence on the teachers' affective commitment. Similar results have been also reported by Jo (2014), Yang, Badri, Al Rashedi, and Almazroui (2019), and Meredith et al. (2022). Good relationships with other actors in the school provide support and security during processes of change. In addition, according to the concept of affective organizational commitment, the members of an organization are also counted as part of the overall perception of this organization, to which the individually specific commitment is established. This could also be a reason why no significant influence on teachers' commitment was found for the school climate. This construct focuses particularly on parents, who have only a very rudimentary impact on teachers' daily work and are therefore not considered to be members of the organization. Following these findings, this hypothesis (H2.1) can only be partially confirmed.

Having already addressed the relationship with much of the school's staff, the second sub-hypothesis (H2.2) is devoted to the teachers' relationship with school leadership. Not only because of the reform processes in the German school system described above, which have led to increasing autonomy for individual schools, school management is given a special role in the everyday school life of teachers. Rolff (2013), for example, refers to school management as the "engine" of school development, and Leithwood, Harris, and Hopkins (2008) also emphasize the special role of school management in innovation processes, such as the implementation of all-day schooling in Germany. This high relevance can also be confirmed during the analyses of this paper, whereby in the sense of hypothesis 2.2, the direct influence of school leadership on the affective commitment of the teachers is the first point of focus. For all teachers during the analyses, a statistically significant influence of school leadership behavior on their affective commitment was identified. Hence, hypothesis 2.2 can be confirmed. The results validate the reported findings of Harazd, Gieske, and Gerick (2012), Jo (2014), Felfe, Schmook, and Six (2006), and Yang, Badri, Al Rashedi, and Almazroui (2019). In their executive function, school leaders are representative of the goals and values of the individual school as an organization. With their actions, they act as role models for the teaching staff and generate visions for school development processes according to the concept of transformational leadership. In this way, they strongly influence the teachers' perception of the school, so that school leaders have a decisive influence on the teachers' affective commitment. This is particularly important in times of radical change, such as the introduction of

all-day schooling in Germany, as school leaders can channel reform processes, specify possible changes, and prevent uncertainty among teachers through clear communication.

In addition to this direct effect, the third hypothesis (H3) used previous evidence to examine an extensive effect of school leadership behavior on a variety of variables and therefore can be confirmed. During analysis, school leadership behavior emerges as a nodal point. In addition to direct influences on collegial cohesion, relationships with students, and school climate, school leadership also exerts a decisive influence on teachers' job satisfaction and enthusiasm for all-day schooling. While much of this evidence is consistent with previous findings on school leadership (see e.g., Harazd, Gieske, & Gerick, 2012) and the associated theory and therefore highlight its important role, the influence on teachers' enthusiasm for all-day schooling is particularly noteworthy considering extended education research. This effect explicitly shows that the school leadership can successfully build visions for positive reforms and to promote the enthusiasm of the teachers in this regard. Since teachers have to make a decisive contribution to the implementation of all-day schooling in the German school system, their enthusiasm for the accompanying goals and processes is of particular importance. Hence, school leaders advance to become key figures in the implementation of reform efforts, and their performance makes a decisive contribution to teachers' affective commitment via a variety of positive influences, which is illustrated by the extensive overall effect (see Table 2) and was already assumed by the theoretical explanations.

During the discussion of hypotheses one to three, differences were already mentioned between teachers who actively participate in all-day activities and those who do not. These differences are the concern of the fourth hypothesis (H4). So far, there are no robust results on possible differences between these two groups, which is why no previous findings can be drawn upon. Theoretical contributions, however, discuss teaching in the all-day sector as "a new profession" (cf. Wunder, 2008) since numerous new activities and relationship structures significantly change the everyday work of teachers. For example, first qualitative studies indicate an intensification of the teachers' relationship to their students (cf. Rehm, 2018). Other studies emphasize the increasing pedagogical activities in the German all-day sector. Combining these findings with the descriptions of affective organizational commitment it can be suggested that there are different factors for the two groups which are relevant for the development of an emotional bond with their school. With our analyses, we can confirm this assumption and find crucial differences between the two groups of teachers, especially regarding their relationships with other school members. For the teachers actively involved in the extended education program (group 2), the relationship to the students has a significant effect on the commitment, which is not the case for the other group of teachers. In contrast, for the group of teachers not actively involved in the extended education program (group 1), the relationship with teaching colleagues is a significant factor for commitment, which again does not apply to the second group. The emotional bond that is generated when building affective commitment to a particular organization always relates to the specific characteristics of that individual organization. These specific characteristics include, on the one hand, cultural conditions within the organization and thus the relationships among its members and their behavior toward one another. On the other hand, structures, typical processes, and the goals of the organization play a decisive role. Regarding all-day schools in Germany, it can be stated that for teachers the extended education sector differs from the conventional forenoon sector by different tasks and work activities, more intensive and informal relationships with their students and different goals. Although this is a very rough differentiation, it leads to the

assumption that teachers who are involved in the all-day program and those who are not differ in their conception of the school in which they work. In the case of teachers who are only active in the forenoon area, the conception of the school to which they build up a commitment is limited to this conventional forenoon area of the school. The teachers who are also active in the all-day area, on the other hand, expand their idea of the school to include the processes and activities of the all-day area. This leads to the assumption that they build up their affective commitment to a different perception of the school as an organization.

Finally, the significant influence of enthusiasm for the all-day program can only be reported for the second group of teachers. This finding may seem obvious at first. However, it must be noted that teachers' participation in the German all-day program is not always voluntary. Therefore, it is a pleasing finding that for the group of teachers in question, a promotion of commitment can be achieved via enthusiasm for the all-day program. Furthermore, it is an important finding that school management can positively influence teachers' commitment to the school via this emotional aspect, despite or precisely because of the introduction of all-day schooling in the German school system.

Limiting the discussion of the findings is the lack of all-day specific research on teachers in the German school system to refer to. The extensive research deficits are also highlighted in the context of the "GTS-Bilanz" Project, which is a follow-up project to the "StEG" study. Many results must therefore be interpreted based on theoretical findings. Furthermore, there is no way of monitoring the voluntary nature of the teachers' participation in all-day programs. Due to missing data for the grouping variable on participation in all-day schooling, the sample was reduced from a possible 842 to 649 teachers. Furthermore, the sample was not representative for the whole German school system and includes only elementary schools. Hence, the generalization of the results has to be made carefully. Finally, the unequal gender ratio can be seen as a limitation. It should be mentioned at this point that there are significantly more female than male teachers at German elementary schools. Thus, this gender ratio can be considered representative for the basic population. Previous research on gender differences regarding commitment is very heterogeneous (e.g., Peterson, Kara, Fanimokun, & Smith, 2019) so that no reasonable assumptions about possible gender influences can be derived for this study.

Even in German all-day schools, the influences on overall commitment are comparable to those found in earlier studies. However, the results indicate that structural changes in the school organization, such as the extension of the school day, lead to a specific commitment to this changed school organization. To this end, active involvement as well as enthusiasm for these changes seem to play an important role. Both can probably be influenced by the leadership of the school management, which not only influences the enthusiasm and the commitment, but also has possibilities to involve the teachers more in the changed structures. This would require more flexibility for school leaders in the extent to which they also deploy teachers in the all-day sector. In other words, more staff autonomy within school autonomy. In addition, an awareness should be created that innovations concerning the work at schools also lead to an adjustment of the individual image of one's own school and thus a new or extended bond (commitment) to one's own school arises. The new commitment, however, is based on personal experience with the changed structures and conditions, which suggests that as many teachers as possible should be actively involved. Overall, the results found emphasize the crucial role of teachers and school management in the implementation and manifestation of school reforms.

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