

Chapter 13

Motivation as an Aspect of Professional Competence: Research Findings on Teacher Enthusiasm

Mareike Kunter

13.1 Introduction

This chapter addresses teachers' motivational characteristics as an aspect of their professional competence. As the previous chapters have shown, recent research on individual differences among teachers has focused primarily on knowledge and beliefs as cognitive components of professional competence that are sometimes subsumed under the term “expertise” (Bromme 2008). However, if competence is understood to include both the ability *and* the willingness to cope with the demands of a given situation (Connell et al. 2003; Klieme and Leutner 2006; Weinert 2001, an exclusive focus on the cognitive characteristics of teaching seems to fall short of the mark. The complex demands of the teaching profession require—on both a day-to-day and a long-term basis—intense concentration, attention, and the ability to deal with failure, as well as a readiness to remain engaged over long periods of time, to expose oneself repeatedly to new situations, and to take advantage of the learning opportunities that may result (Feldon 2007; Floden and Buchmann 1993; Oser and Baeriswyl 2001). An important point frequently made regarding the demands of the teaching profession is that teachers are themselves responsible for continuously developing their professional competence and that they need to initiate their own learning processes to meet the challenges of the profession (Oser 1997). The extent to which teachers succeed in fulfilling these short- and long-term demands depends in large part on their general motives, their goals, the value they attribute to teaching, and their confidence in their own teaching abilities—all these are motivational characteristics that may vary from one teacher to the next.

For these reasons, the COACTIV model includes motivational characteristics as an aspect of teachers' professional competence. Motivational characteristics are habitual

M. Kunter (✉)
Institute of Psychology, Goethe University Frankfurt, PEG, Grüneburgplatz 1,
60323 Frankfurt, Germany
e-mail: kunter@paed.psych.uni-frankfurt.de

individual differences in goals, preferences, motives, and affective–evaluative qualities that interact with other individual characteristics as well as with the characteristics of the situational context to determine the types of behavior that people display, and the intensity, quality, and duration of that behavior (Mitchell 1997). This chapter addresses motivational characteristics that are related directly to the classroom context; Chap. 14 will address general occupational motivation from the perspective of occupational self-regulation.

This chapter begins by introducing motivation as an aspect of professional competence and offering a brief overview of research findings on teacher motivation in order to set the research carried out within COACTIV framework in a broader context. Extending on previous findings, we have focused in COACTIV on a hitherto neglected aspect of motivation: that of enthusiasm as an intrinsic motivational orientation. Our central research questions concern the stability or variability of teacher enthusiasm, on the one hand, and the role of teacher enthusiasm as a predictor of instructional quality and, in turn, student learning outcomes, on the other. The chapter concludes with a review of the current state of knowledge and an outlook on future research questions and their practical implications.

13.2 Motivation as an Aspect of Teacher Competence

Motivation is a frequent topic in the theoretical literature on the teaching profession. In older works as well as in popular discussion, it is often depicted as a one-dimensional construct, as a kind of inner energy and vitality that determines the intensity of teachers' behavior. This perspective generally assumes that only those who possess a particularly "high level" of motivation are suited to the teaching profession at all. Because it tends to offer low material compensation,¹ few opportunities for advancement, and relatively few tangible positive reinforcements, teaching is often viewed as a profession that is not in itself intrinsically motivating (Lortie 1975).

Such a one-dimensional construct of motivation, which merely specifies a certain level of motivation as a necessary qualification for the teaching profession, does not, however, adequately reflect the complex underlying processes that result in teachers engaging more or less successfully with their work. In psychological theory, "motivation" refers to individually varying personal characteristics that constitute the reasons for human behavior (Pintrich 2003; Rheinberg 2006). Psychological research on motivation distinguishes a number of motivational constructs that are viewed as conditions for the initiation and maintenance as well as the quality of actions (Mitchell 1997; Pintrich 2003). Teaching is a complex activity that requires a high degree of self-regulation. As psychological research has shown, it is in precisely these types of activities that motivational characteristics serve as important predictors of how successfully individuals meet situational demands (Kanfer and

¹This argument is frequently found in the US literature, as US teachers long received very low salaries.

Heggstad 1997). Especially in the classroom context, teachers need to act in a goal-directed manner, but at the same time to react flexibly to difficulties and impediments—which requires a high level of concentration, effort, and the ability to deal with resistance (Feldon 2007; Lin et al. 2005; Sternberg and Horvath 1995). Like other professionals, teachers demonstrate different levels of willingness to deal productively with these challenges—frequently as result of a conscious decision made on the basis of their own, individually varying goals and expectations. Motivational research offers several constructs that can be applied fruitfully to the teaching context to explain these different actions and levels of readiness to act.

In contrast to the substantial body of research on knowledge and beliefs, research on teacher motivation and particularly on classroom-oriented motivation is sparse and has only recently begun to take off (see Alexander 2008; Woolfolk Hoy 2008). At present, there is little empirical evidence on the motivational qualities predicting teachers' instructional success and/or on how these motivational qualities develop. To contextualize the approach taken in COACTIV, the following section provides a brief outline of key findings from three main areas of research on teacher motivation: reasons for choosing the profession, self-efficacy beliefs, and teachers' intrinsic orientations or enthusiasm. This last area has been a focus of COACTIV research and will be addressed in more detail.

The starting point for the systematic investigation of teacher motivation was the question of why people decide to become teachers in the first place. In the terms of motivational psychology, this question primarily concerns the initiation of behavior. Based on Lortie's groundbreaking work (1975), research on the reasons for choosing a teaching career has identified different types of motivation, frequently distinguishing between extrinsic motivations (i.e., leisure, financial advantages, status, security, or the occupation being family friendly) and intrinsic motivations (subject interest, enjoyment of working with children and teenagers, the desire to make a contribution to society; see Brookhart and Freeman 1992; Watt and Richardson 2007). On the whole, these works indicate that prospective and practicing teachers rate intrinsic motivations as highly important in their choice of occupation and extrinsic motivations as less important. However, research using individual diagnostic tests to identify combinations of motivations that predict successful professional practice has produced mixed results. Cross-sectional studies have found people who reported higher levels of intrinsic motivation as the reason for their career choice to show higher career satisfaction and greater professional commitment (Reyes 1990; Watt and Richardson 2007). On the other hand, studies directly exploring the relationship between motivation and aspects of professional practice—for example, the length of time an individual remains in the profession—have not consistently found intrinsic motivations to be advantageous (Miech and Elder 1996; Wilhelm et al. 2000). Studies using the motivations underlying teachers' career choice to explain their subsequent teaching success, ideally from a longitudinal perspective, are scarce. As a result, no firm conclusions can yet be drawn on the practical relevance of individually varying reasons for the choice of a teaching career.

In contrast to research on the reasons for choosing a teaching career, in which the primary interest is on motivational characteristics at career entry, research on teachers' self-efficacy beliefs focuses on identifying motivational differences among

teachers already working in the profession and on understanding the consequences of these differences for their teaching practice. From the perspective of motivational psychology, the aim of this strand of research is therefore to identify predictors of high-quality teaching. Based on Bandura's (1997) construct of self-efficacy, teachers' self-efficacy beliefs are defined as their own assessments of how successful they are in facilitating and supporting student learning and achievement, even when students seem difficult or unmotivated (Tschannen-Moran and Woolfolk Hoy 2001). Various studies have indicated that high self-efficacy beliefs may help individuals to meet occupational demands. For example, teachers with high self-efficacy beliefs have been shown to employ more innovative and effective methods, to provide higher-quality teaching, to show fewer symptoms of stress in the long term, and to demonstrate greater readiness to engage in their work outside the classroom (e.g., Brouwers and Tomic 2000; Caprara et al. 2006; Morris-Rothschild and Brassard 2006; Schmitz and Schwarzer 2000; Skaalvik and Skaalvik 2007; Stein and Wang 1988; Wolters and Daugherty 2007). In the COACTIV sample, too, positive self-efficacy beliefs were associated with better instructional quality (Holzberger et al. *in press*) and lower emotional exhaustion and higher satisfaction (Klusmann et al. 2006), and data provided by teacher candidates in the COACTIV-R follow-up study showed that high self-efficacy beliefs were associated with increased occupational well-being and more intensive learning activities (Seiz 2009). The empirical evidence that positive self-efficacy beliefs are a relevant aspect of teachers' professional competence is therefore strong.

Intrinsic orientations and enthusiasm represent a further dimension of motivation. A fundamental hypothesis in research on teacher motivation is that teachers who see their occupation as valuable and important will invest greater effort and perseverance in their work and achieve better results (Kunter and Holzberger, *in press*). From the perspective of motivational psychology, the focus here is thus again on meaningful determinants of the quality of action. The underlying hypothesis has been supported by findings in the psychology of motivation, which have established the importance of intrinsic orientations—that is, the stable, positive experience of specific activities or subject areas—for functional behaviors in various learning and work contexts (Eccles and Wigfield 2002; Ryan and Deci 2000). As a motivational characteristic that represents such an intrinsic orientation among teachers in particular, the concept of enthusiasm is often investigated. Correlational and experimental studies in the field of instructional research, in which enthusiasm has been defined as an animated style of presentation distinguished by positive affective expression, have demonstrated that students with highly enthusiastic teachers exhibit higher motivation for the subject and—although results are not conclusive—better learning behaviors and higher achievement outcomes (Babad 2007; Brigham et al. 1992; Frenzel et al. 2009; McKinney et al. 1984; Patrick et al. 2003). Accordingly, enthusiasm is often identified as a characteristic of effective teachers and thus appears to be an important motivational characteristic in the instructional context (Brophy and Good 1986; Gage and Berliner 1996). However, most empirical studies on enthusiasm conducted to date have used observational or student rating data to identify individual differences in teacher enthusiasm. Whether the behavioral styles observed were unambiguously attributable to the teachers' more positive evaluations of their

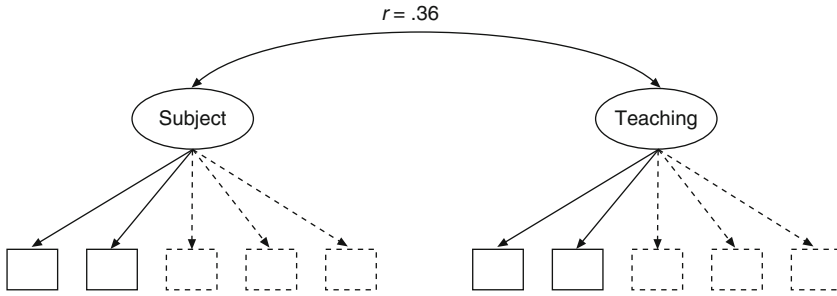
profession—in the sense of a habitual motivational characteristic—could not be inferred from these data. It thus remains unclear to what extent enthusiasm is to be understood as a teacher characteristic or as an instructional aspect—and whether or not it can really be considered an aspect of teachers' professional competence. Clarifying this point was a primary objective of our research on motivational characteristics in COACTIV.

13.3 The Investigation of Teacher Enthusiasm in COACTIV

Prior to COACTIV, almost no empirical studies had conceptualized teacher enthusiasm as an individual characteristic and examined it in relation to teachers' classroom practice or students' learning outcomes. Moreover, previous studies have been relatively vague in terms of defining enthusiasm and explaining how it differs from other constructs. Long and Woolfolk Hoy (2006), for example, referred to "enthusiasm," "love of the subject," as well as "interest" when describing teachers who are highly intrinsically motivated.

Within the COACTIV model of competence, enthusiasm is conceived as an individual orientation reflecting a habitual positive affective experience of one's professional activities (Kunter et al. 2008). It is expected that teachers who are highly enthusiastic about their profession will also demonstrate more functional behavior—for example, higher instructional quality. Drawing on the theory of interest (Krapp 2002) and the literature on intrinsic motivation (Rheinberg 2006; Schiefele 2008), we make a further theoretical distinction between two dimensions of enthusiasm: an activity-related dimension—that is, enthusiasm for teaching—and a topic-related dimension, that is, enthusiasm for the subject taught. This distinction reflects the dual role of teachers, who serve, on the one hand, as educators and, on the other, as experts in their field. This dual role is a salient characteristic of the teaching profession. For many aspiring teachers beginning their professional education, interest in working with students is the dominant motivation; for a similarly large group, interest in a particular subject is the decisive factor (see Pohlmann and Möller 2010; Watt and Richardson 2007). Similar differences can be found between groups of teachers who have been trained to work in different school types, with academic-track teachers typically identifying more with their role as experts in their field, and teachers in other secondary tracks or elementary schools clearly identifying with their role as educators (see Pohlmann and Möller 2010). It can thus be assumed that there are motivational distinctions between individual teachers in terms of their enthusiasm for their subject and, independent of their subject, their enthusiasm for interacting with students. Prior to COACTIV, this distinction was not drawn in the literature on teacher enthusiasm. It is undoubtedly relevant for identifying key areas of teacher competence, however, and research was needed to investigate whether both dimensions are equally important in teaching practice.

A core focus of COACTIV was therefore to empirically validate these two theoretically postulated dimensions of teacher enthusiasm and to evaluate whether they



r = latent correlation; dashed lines = items added to the expanded scales.
 $\chi^2(2, N = 323) = 3.899$; $p < .05$; CFI = .994, RMSEA = .011; SRMR_{between} = .019; BIC = 2250.899.

Fig. 13.1 Measurement model distinguishing between the two dimensions of enthusiasm

have differential significance for teaching experience and practice. To capture the two dimensions of enthusiasm, we therefore developed items relating to either subject matter (e.g., “Even now, I am still enthusiastic about the subject of mathematics”) or aspects of teaching (“I teach mathematics in this class with great enthusiasm”) that were administered at both points of measurement.

Our main findings confirmed the theoretically posited distinction between the two dimensions of enthusiasm. The two scales—enthusiasm for mathematics and enthusiasm for teaching—were moderately correlated, suggesting that teachers who are enthusiastic about their subject do not necessarily enjoy teaching and vice versa (see Fig. 13.1; Kunter et al. 2008, 2011). Substantial interindividual differences among teachers were found for both dimensions: an age effect emerged for enthusiasm for teaching (older teachers were less enthusiastic) and subject-related enthusiasm was related to school type (teachers in academic-track schools were more enthusiastic about mathematics)—in both cases, however, the effect sizes were relatively small (Kunter et al. 2007, 2008).

These findings suggest that there are interindividual differences among teachers in terms of their habitual enthusiasm for both their subject and their primary activity—that is, teaching. However, in order to define enthusiasm as a characteristic of professional competence, at least two other conditions must be fulfilled. First, it must be shown that enthusiasm is habitual (i.e., relatively stable), but also malleable (Pekrun and Helmke 1991). Second, the practical relevance of the interindividual differences observed must be demonstrated. In other words, we need to test whether teachers’ enthusiasm impacts their classroom instruction and, in turn, their students’ learning outcomes. The following sections address these two issues.

13.3.1 Findings on the Stability and Malleability of Enthusiasm

In contrast to the more cognitive aspects of competence, it is necessary to consider whether motivational orientations can indeed be understood as a fundamentally learnable and malleable aspect of competence. The investigation of reasons for

choosing the teaching profession, with its underlying assumption that the original motivation for becoming a teacher has long-term consequences for how well individuals adapt to their work and conduct themselves in professional life, implies an underlying stability and thus inalterability of that motivation. Likewise, the idea that teachers must demonstrate “high” motivation in order to succeed in the profession on the long term implies that motivational orientations are stable across time and situations. However, these assumptions are not supported by existing findings, some of which derive from motivational research in other professions. For instance, diverse studies have shown that intrinsic orientations in educational or professional contexts can increase or decrease as a function of characteristics of the social environment (Ryan and Deci 2000), that self-efficacy beliefs can be enhanced by training and targeted interventions (Campbell 1996; Glickmann and Tamashiro 1982; Hagen et al. 1998) and that even reasons for the choice of profession change over the course of professional education (Schutz et al. 2001).

Results from COACTIV suggest that teacher enthusiasm is not an immutable trait, but rather that it may change over time and vary according to context. Drawing on data from the 1-year longitudinal COACTIV study, we calculated the stability coefficients for enthusiasm for the subject and enthusiasm for teaching for 155 teachers who had participated in the survey at both measurement points and who had taught the same classes at both (i.e., we computed the correlations between the motivational variables at the first and second measurement points). In order to exclude changes due to measurement errors, we used structural equation models with covariate measurement errors to compute latent correlations. Findings showed medium to high stability, with $r=0.72$ for subject enthusiasm and $r=0.61$ for teaching enthusiasm (for both $r: p < 0.05$). The difference in the magnitude of the coefficients was statistically significant, indicating that enthusiasm for the subject was somewhat more stable than was enthusiasm for teaching. Teachers who reported enjoyment of teaching in one year did not necessarily report it again or to the same extent in the next year. Thus, these findings suggest that there is some room for change in teacher enthusiasm.

Moreover, the two dimensions of enthusiasm seem to be affected by context, although to different extents (see Kunter et al. 2011). In a cross-sectional analysis of data obtained at the first measurement point, we examined the relationship between teacher self-reports of enthusiasm (for teaching and the subject) and various characteristics of the classes taught: structural characteristics (class size, percentage of girls), student characteristics (mean mathematics achievement, mean enjoyment of mathematics), and characteristics of the teaching situation (difficulty maintaining discipline as measured by student ratings). This analysis revealed that the two dimensions of enthusiasm were differentially related to class characteristics: enthusiasm for teaching was predicted by student motivation (positive correlation) and disciplinary problems (negative correlation), whereas enthusiasm for the subject varied independently of class characteristics. Thus, whereas subject enthusiasm was independent of student characteristics—indicating a relatively high level of situational stability—teachers in classes with highly motivated students and fewer disciplinary problems took more pleasure in teaching those classes, indicating a higher situational variability of this dimension of enthusiasm. These findings were replicated in other teacher samples (Kunter et al. 2011).

13.3.2 The Importance of Teacher Enthusiasm for Instructional Practice and Student Learning Outcomes

Teachers thus differ in terms of both their subject enthusiasm and their enthusiasm for the activity of teaching. But what are the practical implications of these differences? The literature on intrinsic motivation (e.g., Eccles and Wigfield 2002; Gagné and Deci 2005; Ryan and Deci 2000) suggests that intrinsically motivated persons show higher engagement, which—for teachers—might be reflected, for example, in higher levels of continuing professional development, more intensive lesson preparation, and a greater openness to using new methods. This high engagement could lead to higher instructional quality, which in turn favorably impacts students' development. Initial studies on related characteristics, such as autonomous motivation and flow experience, indicate that differences in teachers' intrinsic experience of the profession are indeed associated with differences in the motivation of the students they teach (Bakker 2005; Roth et al. 2007). Furthermore, studies have found that students of more intrinsically motivated (i.e., enthusiastic) teachers are more interested in the subject, enjoy their lessons more, and give their teachers higher ratings on instructional quality (Frenzel et al. 2009; Roth et al. 2007). These studies did not, however, distinguish between the subject and the activity of teaching, meaning that it remains unclear which form of enthusiasm is relevant. Moreover, the previous research did not address the possible effects of teacher enthusiasm on student achievement.

In COACTIV, we examined these questions in depth, drawing on data from the 175 classes that participated in the longitudinal PISA/COACTIV assessment in grades 9 and 10. Our aim was to study whether students in classes with highly enthusiastic teachers were also more motivated and showed better learning outcomes. In testing this causal hypothesis, it was important to bear in mind that the PISA assessment took place at the end of the school year. Thus, at the first point of measurement (end of grade 9), the teachers had already been teaching the students for almost an entire school year. If an association were to emerge between teacher enthusiasm and student variables at this first point of measurement, it would be impossible to determine conclusively whether this association could be interpreted as an effect of the teacher on the students. It is equally possible that teachers display high enthusiasm because their classes are motivated and perform at a high level (see Kunter et al. 2011; Stenlund 1995). Distinguishing between class effects on teacher enthusiasm and effects of teacher enthusiasm on the class in order to determine the causal direction of the relationship would require an experimental control design. In the following analyses, we were able to capitalize on a feature of the COACTIV design to isolate the effect of enthusiasm to the greatest extent possible: in a small subsample of 28 classes, a change of teacher occurred between the two points of measurement. Thus, these 28 classes were exposed to the “treatment” of a more (or less) enthusiastic teacher, allowing causal interpretation of findings.

Separating between groups with and without a change of teacher, we therefore estimated multilevel regression models in which both of the teacher enthusiasm

Table 13.1 Predicting mathematics achievement in grade 10

Predictors	Same teacher		New teacher	
	Model 1	Model 2	Model 1	Model 2
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)
<i>Student level</i>				
Achievement in grade 9	0.53 (0.02)*	0.53 (0.02)*	0.52 (0.04)*	0.52 (0.04)*
<i>Teacher level</i>				
Enthusiasm for subject	—	0.01 (0.03)	—	-0.06 (0.05)*
Enthusiasm for teaching	—	0.06 (0.03)*	—	0.11 (0.05)*
<i>R</i> ² individual level	0.23	0.23	0.23	0.23
<i>R</i> ² teacher level	0.74	0.75	0.79	0.80
Variance between classes for grade 10 achievement	37%		22%	

Note: *b* HLM regression weight, *SE* standard error of *b*, *R*² proportion of variance explained
 **p*<0.05

Table 13.2 Predicting enjoyment of mathematics in grade 10

Predictors	Same teacher		New teacher	
	Model 1	Model 2	Model 1	Model 2
	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)
<i>Student level</i>				
Enjoyment, grade 9	0.70 (0.01)*	0.70 (0.01)*	0.65 (0.03)*	0.65 (0.03)*
<i>Teacher level</i>				
Enthusiasm for the subject	—	-0.02 (0.02)*	—	-0.02 (0.05)*
Enthusiasm for teaching	—	0.04 (0.02)*	—	0.18 (0.06)*
<i>R</i> ² individual level	0.47	0.47	0.41	0.41
<i>R</i> ² teacher level	0.71	0.72	0.10	0.39
Variance between classes for grade 10 enjoyment	6%		7%	

Note: *b* HLM regression weight, *SE* standard error of *b*, *R*², proportion of variance explained
 **p*<0.05

scales (assessed at two points of measurement) were used to predict students’ mathematics achievement (curriculum-valid test, grade 10) and enjoyment of mathematics (questionnaire, grade 10). To control for students’ baseline characteristics, we included individual-level mathematics achievement in grade 9 (PISA test) and enjoyment of mathematics in grade 9, respectively, as additional predictors. Tables 13.1 and 13.2 present the results of these analyses. Teachers’ enthusiasm for teaching positively affected both student achievement (Table 13.1) and student motivation (Table 13.2): classes with teachers who reported higher enthusiasm for teaching showed higher achievement at the end of the school year and a greater increase in students’ enjoyment of mathematics. This association applied only to enthusiasm for teaching and not to enthusiasm for mathematics. Furthermore, as expected, stronger effects were found for classes in which there was a change of

Table 13.3 Predicting instructional quality from teacher enthusiasm (results of latent multilevel analysis, only class-level results are presented)

	Teacher self-reports			Student ratings		
	Model 1a	Model 1b	Model 1c	Model 2a ^a	Model 2b ^a	Model 2c ^a
	Cognitive activation	Support	Classroom management	Cognitive activation	Support	Classroom management
Predictors	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)	<i>b</i> (<i>SE</i>)
Enthusiasm for the subject	0.30 (0.09)*	0.16 (0.10)	-0.04 (0.08)	-0.00 (0.02)	-0.07 (0.08)	-0.10 (0.07)
Enthusiasm for teaching	0.07 (0.05)	0.23 (0.05)*	0.14 (0.06)*	0.05 (0.02)*	0.28 (0.06)*	0.24 (0.05)*
Interaction subject × teaching	0.12 (0.14)	-0.17 (0.14)	0.20 (0.11)	-0.02 (0.05)	—	-0.10 (0.13)
<i>R</i> ²	0.07	0.09	0.10	0.05	0.06	0.05

Note: *b* HLM regression weight, *SE* standard error of *b*, *R*² proportion of variance explained

^aAs estimating the parameters of latent interaction terms is especially complex in multilevel models, separate models were estimated

**p* < 0.05

teacher. This difference was particularly pronounced for students' enjoyment of mathematics, where the amount of variance explained at the class level increased substantially when teachers' enthusiasm for teaching was included in the model (from 10% to 39%). These results show that teachers' enthusiasm for teaching predicts their students' motivational development (assessed in terms of their enjoyment of the subject of mathematics). Whether these positive effects are indeed the result of enthusiastic teachers providing high-quality teaching will be explored in the following.

We next examined the relevance of the two dimensions of enthusiasm for teachers' classroom practice in terms of three aspects of instructional quality: classroom management, cognitive activation, and constructive support (see Chap. 6; Kunter et al. 2008, for details of our operationalization of instructional quality). We used self-report measures from the teacher questionnaire as well as student ratings from the student questionnaire as indicators of each aspect of instructional quality. Multilevel structural equation models were used to predict each aspect of instructional quality from the teachers' enthusiasm for mathematics and enthusiasm for teaching. The results of the analyses (see Table 13.3) complement the findings on the positive effects of enthusiasm for teaching reported above (see also Kunter et al. 2008). Enthusiasm for the activity of teaching was positively associated with all three aspects of instructional quality: teachers who reported enjoyment of teaching displayed better classroom management, facilitated higher cognitive activation, and provided more support for their students—from both the teacher and the student perspective. By contrast, the pattern of findings for subject-specific enthusiasm was

inconsistent. Whereas teacher self-reports on the instructional aspects were moderately correlated with their self-reported enthusiasm, from the students' perspective, teacher enthusiasm for the subject of mathematics was not associated with higher perceived instructional quality. In other words, teachers' enthusiasm for their subject is not directly reflected in their instructional behavior as perceived by their students. Further analyses that extend on the findings reported in Kunter et al. (2008) and are summarized in Table 13.3 confirm that enthusiasm for the subject has less impact on instructional practice than does enthusiasm for teaching. The table presents findings from multilevel structural equation models predicting instructional quality, in which—in addition to the main effects of the two dimensions of enthusiasm—the interaction of the two latent factors was included as a predictor. These analyses provide insights into the interaction of the two dimensions of enthusiasm and make it possible to identify compensation effects (e.g., an additional effect of subject enthusiasm when teaching enthusiasm is low). As the unstandardized regression coefficients presented in Table 13.3 show, even when possible interactions were taken into account, the findings showed primarily main effects of enthusiasm for teaching, and enthusiasm for mathematics contributed very little to explaining the three aspects of instructional quality.

13.4 Conclusion and Outlook

In COACTIV, functional motivational orientations are understood to be an aspect of professional competence that, like cognitive characteristics, influence whether or not teachers function successfully in their profession. We examined motivational orientations in terms of teachers' enthusiasm, distinguishing between enthusiasm for the subject and enthusiasm for teaching. Overall, the results demonstrate the importance of enthusiasm as a further area of teachers' professional competence: teachers who perform their job enthusiastically provide higher-quality instruction, and their students achieve higher learning outcomes. However, our results show that the crucial factor is not the "love of the subject" frequently emphasized in the research (Long and Woolfolk Hoy 2006), but rather teachers' enjoyment of interacting with students—that is, of their main activity of teaching. The findings also show that enthusiasm is in no way to be understood as an immutable personal characteristic; rather, teachers' motivational orientations may vary over their careers or depend on certain contextual conditions. These findings appear to justify the conceptualization of motivational orientations as a distinct area of teacher competence.

By taking motivational characteristics into account, the model empirically tested in COACTIV provides a much more comprehensive picture of the characteristics required of teachers than that provided, for instance, in the work of Bromme (2008) or Shulman (Shulman and Shulman 2004) and others (e.g., Hill et al. 2005; Sternberg and Horvath 1995; Tittle 2006; Woolfolk Hoy 2008), all of whom emphasized cognitive components (i.e., expertise). Our expanded model posits an understanding

of competence that reflects the interaction among cognitive, motivational, and volitional components that Weinert (2001) described in his model of professional competence. This conceptualization corresponds with that of “professional competence” proposed in the international literature by, for example, Kane (1992) in the generic context, and by a few other authors in specific relation to teaching (D’Agostino and Powers 2009; Goodman et al. 2008; Tannenbaum and Rosenfeld 1994) or to other professions such as medicine (Epstein and Hundert 2002). What all these approaches have in common is the idea that a broad knowledge base and a firm grasp of skills and techniques are necessary but not sufficient conditions for meeting the demands of the teaching profession and that conscious behavior control, which is shaped by motivational characteristics, is also of high importance. This hypothesis has only recently been subjected to empirical examination (e.g., Bakker et al. 2007; Butler 2007; Frenzel et al. 2009; Roth et al. 2007). The findings reported in this chapter on the association of enthusiasm for teaching with instructional quality, as well as with achievement and motivational gains, complement these findings and underscore the importance of considering teachers’ motivational characteristics as an aspect of their professional competence in future research.

The findings on enthusiasm obtained in COACTIV further demonstrate that research on teacher motivation can benefit from drawing on psychological theories of motivation. Previous studies addressing motivation as a necessary occupational characteristic of teachers, but also approaches deriving from popular psychology, are often based on a rather one-dimensional understanding of motivation—as expressed, for example, in calls to increase “the” motivation of teachers, or to hire only “highly motivated” teachers (Firestone and Pennell 1993; National Board for Professional Teaching Standards 2002; Organisation for Economic Co-operation and Development 2005; Shulman and Shulman 2004). Yet current research on motivation emphasizes that there is not just one single form of motivation, but rather that a variety of motivational characteristics can be differentiated, and that these different motivational qualities cause interindividual differences in the intensity and quality of behavior (Eccles and Wigfield 2002; Pintrich 2003). Based on the findings presented here, it is clear that an oversimplified concept of “motivation,” described as either “high” or “low,” cannot properly describe the motivational characteristics required for competent teaching. In this chapter, we studied enthusiasm as a two-dimensional characteristic comprising enthusiasm for the subject and enthusiasm for teaching—that is, topic-specific versus activity-specific intrinsic orientations—and showed that the two dimensions differ in their relevance for classroom practice and show differential associations with contextual characteristics. Those teachers who reported enjoyment of teaching were seen by their students as providing higher-quality instruction, independent of their enthusiasm for the subject itself. Furthermore, whereas enthusiasm for teaching positively impacted student achievement and motivation, enthusiasm for the subject did not. These findings are particularly interesting in the light of similar findings from COACTIV on teachers’ professional knowledge (see Chap. 8). There, too, pedagogical content knowledge—that is, knowledge about processes of teaching and learning in a particular subject—predicted high teaching quality, but the same did not apply to teachers’

content knowledge. Both sets of findings underscore what sets teaching apart as a profession: teachers are not scientists or scholars who occupy themselves solely with their field of research; their main activity is interacting with children and young people in relation to a specific subject. It is evident that the cognitive and motivational characteristics involved in precisely this interaction are of central importance in predicting successful teaching practice.

In conclusion, a few words should be said about the limitations of the studies carried out in the COACTIV framework and the questions that remain open. First, it should be noted that the operationalization of the construct of teacher enthusiasm in this—rather exploratory—study was not optimal and could be improved substantially. In more recent studies, such as “Stress and Burnout in the Teaching Profession: An In-Depth Analysis of the Role of Personal and Institutional Resources” (BELE) and the COACTIV-R study of teachers in the practical, classroom-based phase of teacher education (Chap. 5; see also Fig. 5.1), the enthusiasm scales have been expanded and additional scales have been implemented to tap other motivational constructs (e.g., self-efficacy beliefs, goal orientations, motives) beyond enthusiasm (Kunter et al. 2011). These studies will make it possible to determine the relevance of different motivational qualities for professional practice. With its repeated points of measurement, COACTIV provides initial insights into the stability of motivational characteristics, but this aspect warrants further examination. Considering that the COACTIV teachers have, on average, more than 20 years of teaching experience, the changes observed in enthusiasm—and especially in enthusiasm for teaching—from 1 year to the next (in the same class) are particularly interesting. It can be assumed that teachers whose occupational situation changes significantly also experience major changes or fluctuations in enthusiasm. The comprehensive survey of institutional and individual characteristics in the COACTIV-R study provides a starting point for further analyses of the conditions under which (prospective) teachers’ enthusiasm for the activity of teaching increases or diminishes.

The COACTIV-R sample is also particularly well suited to more a precise analysis of how enthusiasm or other motivational characteristics facilitate successful teaching. Why do more enthusiastic teachers succeed in providing higher-quality instruction? As argued above, it can be assumed that favorable motivational characteristics increase the readiness to exert effort—for example, to seek out opportunities for in-service training, learning, and personal development or to plan lessons in more depth or detail. Empirical findings on various motivational constructs support this hypothesis. Using COACTIV data, for example, Richter et al. found that teachers who reported high work engagement—in the sense of a motivational orientation to succeed in the general work context (see Chap. 17)—took advantage of more professional development opportunities than did teachers with lower work engagement (Richter et al. 2010). Furthermore, in the COACTIV-R study, teacher candidates with high self-efficacy reported reflecting more intensively on their teaching experiences and working more actively to solve problems than did teacher candidates with low self-efficacy (Seiz 2009). In other studies, teachers with high self-efficacy were found to make greater use of informal learning opportunities

(Lohman 2006), and teachers whose achievement goal orientations emphasized their own learning and professional development engaged more actively in help-seeking behavior (Butler 2007). Future work should continue to examine the mechanisms underlying the effects of teachers' positive motivational orientations in the classroom. It can be expected that motivational variables do not affect instructional practice directly—in the same way as knowledge or beliefs, for example—but operate in a more indirect manner, as moderator variables influencing factors that promote effective instructional behavior (e.g., learning activities). This hypothesis remains to be explored and is a focus of the follow-up studies to COACTIV, in particular COACTIV-R.

References

- Alexander PA (2008) Charting the course for the teaching profession: the energizing and sustaining role of motivational forces. *Learn Instr* 18(5):483–491. doi:[10.1016/j.learninstruc.2008.06.006](https://doi.org/10.1016/j.learninstruc.2008.06.006)
- Babad EY (2007) Teachers' nonverbal behavior and its effects on students. In: Perry RP, Smart JC (eds) *The scholarship of teaching and learning in higher education: an evidence-based perspective*. Springer, New York, pp 201–261
- Bakker AB (2005) Flow among music teachers and their students: the crossover of peak experiences. *J Vocat Behav* 66(1):26–44. doi:[10.1016/j.jvb.2003.11.001](https://doi.org/10.1016/j.jvb.2003.11.001)
- Bakker AB, Hakanen JJ, Demerouti E, Xanthopoulou D (2007) Job resources boost work engagement, particularly when job demands are high. *J Educ Psychol* 99(2):274–284. doi:[10.1037/0022-0663.99.2.274](https://doi.org/10.1037/0022-0663.99.2.274)
- Bandura A (1997) *Self-efficacy: the exercise of control*. Freeman, New York
- Brigham FJ, Scruggs TE, Mastropieri MA (1992) Teacher enthusiasm in learning disabilities classrooms: effects on learning and behavior. *Learn Disabil Res Pract* 7(2):68–73
- Bromme R (2008) Lehrerexpertise [Teacher expertise]. In: Schneider W, Hasselhorn M (eds) *Handbuch der Pädagogischen Psychologie*. Hogrefe, Göttingen, pp 159–167
- Brookhart SM, Freeman DJ (1992) Characteristics of entering teacher candidates. *Rev Educ Res* 62(1):37–60. doi:[10.3102/00346543062001037](https://doi.org/10.3102/00346543062001037)
- Brophy J, Good TL (1986) Teacher behavior and student achievement. In: Wittrock MC (ed) *Handbook of research on teaching*. Macmillan, New York, pp 340–370
- Brouwers A, Tomic W (2000) A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teach Teach Educ* 16(2):239–253. doi:[10.1016/S0742-051X\(99\)00057-8](https://doi.org/10.1016/S0742-051X(99)00057-8)
- Butler R (2007) Teachers' achievement goal orientations and associations with teachers' help-seeking: examination of a novel approach to teacher motivation. *J Educ Psychol* 99(2):241–252. doi:[10.1037/0022-0663.99.2.241](https://doi.org/10.1037/0022-0663.99.2.241)
- Campbell J (1996) A comparison of teacher efficacy for pre- and in-service teachers in Scotland and America. *Education* 117(1):2–11
- Caprara GV, Barbaranelli C, Steca P, Malone PS (2006) Teachers' self-efficacy beliefs as determinants of job satisfaction and students' academic achievement: a study at the school level. *J Sch Psychol* 44(6):473–490. doi:[10.1016/j.jsp.2006.09.001](https://doi.org/10.1016/j.jsp.2006.09.001)
- Connell MW, Sheridan K, Gardner H (2003) On abilities and domains. In: Sternberg RJ, Grigorenko EL (eds) *The psychology of abilities, competencies, and expertise*. Cambridge University Press, Cambridge, UK, pp 126–155
- D'Agostino JV, Powers SJ (2009) Predicting teacher performance with test scores and grade point average: a meta-analysis. *Am Educ Res J* 46(1):146–182. doi:[10.3102/0002831208323280](https://doi.org/10.3102/0002831208323280)

- Eccles JS, Wigfield A (2002) Motivational beliefs, values, and goals. *Annu Rev Psychol* 53(1):109–132. doi:[10.1146/annurev.psych.53.100901.135153](https://doi.org/10.1146/annurev.psych.53.100901.135153)
- Epstein RM, Hundert EM (2002) Defining and assessing professional competence. *J Am Med Assoc* 287(2):226–235. doi:[10.1001/jama.287.2.226](https://doi.org/10.1001/jama.287.2.226)
- Feldon DF (2007) Cognitive load and classroom teaching: the double-edged sword of automaticity. *Educ Psychol* 42(3):123–137. doi:[10.1080/00461520701416173](https://doi.org/10.1080/00461520701416173)
- Firestone WA, Pennell JR (1993) Teacher commitment, working conditions, and differential incentive policies. *Rev Educ Res* 63(4):489–525. doi:[10.3102/00346543063004489](https://doi.org/10.3102/00346543063004489)
- Floden RE, Buchmann M (1993) Between routines and anarchy: preparing teachers for uncertainty. *Oxford Rev Educ* 19(3):373–382. doi:[10.1080/0305498930190308](https://doi.org/10.1080/0305498930190308)
- Frenzel AC, Goetz T, Lüdtke O, Pekrun R, Sutton RE (2009) Emotional transmission in the classroom: exploring the relationship between teacher and student enjoyment. *J Educ Psychol* 101(3):705–716. doi:[10.1037/a0014695](https://doi.org/10.1037/a0014695)
- Gage NL, Berliner DC (1996) *Pädagogische psychologie [Educational psychology]*, 5th edn. Beltz PVU, Weinheim
- Gagné M, Deci EL (2005) Self-determination theory and work motivation. *J Organ Behav* 26(4):331–362
- Glickmann C, Tamashiro R (1982) A comparison of first-year, fifth-year, and former teachers on efficacy, ego development, and problem solving. *Psychol Sch* 19:558–562. doi:[10.1002/1520-6807\(198210\)19:4<558::AID-PITS2310190426>3.0.CO;2-F](https://doi.org/10.1002/1520-6807(198210)19:4<558::AID-PITS2310190426>3.0.CO;2-F)
- Goodman G, Arbona C, Dominguez de Rameriz R (2008) High-stakes, minimum-competency exams: how competent are they for evaluating teacher competence? *J Teach Educ* 59(1):24–39. doi:[10.1177/0022487107309972](https://doi.org/10.1177/0022487107309972)
- Hagen KM, Gutkin TB, Wilson CW, Oats RG (1998) Using vicarious experience and verbal persuasion to enhance self-efficacy in pre-service teachers: “Priming the pump” for consultation. *Sch Psychol Q* 13(2):169–178. doi:[10.1037/h0088980](https://doi.org/10.1037/h0088980)
- Hill HC, Rowan B, Ball DL (2005) Effects of teachers’ mathematical knowledge for teaching on student achievement. *Am Educ Res J* 42(2):371–406. doi:[10.3102/00028312042002371](https://doi.org/10.3102/00028312042002371)
- Holzberger D, Philipp A, Kunter M (in press) How Teachers’ self-efficacy is related to instructional quality: a cross-lagged panel analysis. *J Educ Psychol*
- Kane MT (1992) The assessment of professional competence. *Eval Health Prof* 15(2):163–182. doi:[10.1177/016327879201500203](https://doi.org/10.1177/016327879201500203)
- Kanfer R, Heggstad ED (1997) Motivational traits and skills: a person-centered approach to work motivation. *Res Organ Behav* 19:1–56
- Klieme E, Leutner D (2006) Kompetenzmodelle zur Erfassung individueller Lernergebnisse und zur Bilanzierung von Bildungsprozessen: Beschreibung eines neu eingerichteten Schwerpunktprogramms der DFG [Models of competencies for assessment of individual learning outcomes and the evaluation of educational processes: description of a newly established DFG priority program]. *Zeitschrift für Pädagogik* 52(6):876–903
- Klusmann U, Kunter M, Trautwein U, Baumert J (2006) Lehrerbelastung und Unterrichtsqualität aus der Perspektive von Lehrenden und Lernenden [Teachers’ stress and the quality of instruction: linking teachers’ and students’ perception]. *Zeitschrift für Pädagogische Psychologie* 20(3):161–173. doi:[10.1024/1010-0652.20.3.161](https://doi.org/10.1024/1010-0652.20.3.161)
- Krapp A (2002) Structural and dynamic aspects of interest development: theoretical considerations from an ontogenetic perspective. *Learn Instr* 12(4):383–409. doi:[10.1016/S0959-4752\(01\)00011-1](https://doi.org/10.1016/S0959-4752(01)00011-1)
- Kunter M, Holzberger D (in press) Loving teaching: research on teachers’ intrinsic orientations. In: Richardson PW, Karabenick S, Watt HMG (eds) *Teacher motivation: theory and practice*
- Kunter M, Klusmann U, Dubberke T, Baumert J, Blum W, Brunner M, ... Tsai Y-M (2007) Linking aspects of teacher competence to their instruction: results from the COACTIV project. In: Prenzel M (ed) *Studies on the educational quality of schools: the final report on the DFG priority programme*. Waxmann, Münster, pp 39–59

- Kunter M, Tsai Y-M, Klusmann U, Brunner M, Krauss S, Baumert J (2008) Students' and mathematics teachers' perceptions of teacher enthusiasm and instruction. *Learn Instr* 18(5): 468–482. doi:[10.1016/j.learninstruc.2008.06.008](https://doi.org/10.1016/j.learninstruc.2008.06.008)
- Kunter M, Frenzel A, Nagy G, Baumert J, Pekrun R (2011) Teacher enthusiasm: dimensionality and context specificity. *Contemp Educ Psychol* 36(4):289–301. doi:[10.1016/j.cedpsych.2011.07.001](https://doi.org/10.1016/j.cedpsych.2011.07.001)
- Lin X, Schwartz DL, Hatano G (2005) Toward teachers' adaptive metacognition. *Educ Psychol* 40(4):245–255. doi:[10.1207/s15326985ep4004_6](https://doi.org/10.1207/s15326985ep4004_6)
- Lohman MC (2006) Factors influencing teachers' engagement in informal learning activities. *J Workplace Learn* 18(3):141–156. doi:[10.1108/13665620610654577](https://doi.org/10.1108/13665620610654577)
- Long JF, Woolfolk Hoy A (2006) Interested instructors: a composite portrait of individual differences and effectiveness. *Teach Teach Educ* 22(3):303–314. doi:[10.1016/j.tate.2005.11.001](https://doi.org/10.1016/j.tate.2005.11.001)
- Lortie DC (1975) *School teacher: a sociological study*. The University of Chicago Press, Chicago
- McKinney CW, Robertson CW, Gilmore AC, Ford MJ, Larkins AG (1984) Some effects of three levels of teacher enthusiasm on student achievement and evaluation of teacher effectiveness. *J Instr Psychol* 11(3):119–124
- Miech RA, Elder GH (1996) The service ethic and teaching. *Sociol Educ* 69(3):237–253. doi:[10.2307/2112731](https://doi.org/10.2307/2112731)
- Mitchell TR (1997) Matching motivational strategies with organizational contexts. *Res Organ Behav* 19:57–149
- Morris-Rothschild BK, Brassard MR (2006) Teachers' conflict management styles: the role of attachment styles and classroom management efficacy. *J Sch Psychol* 44(2):105–121. doi:[10.1016/j.jsp.2006.01.004](https://doi.org/10.1016/j.jsp.2006.01.004)
- National Board for Professional Teaching Standards (2002) *What teachers should know and be able to do*. National Board for Professional Teaching Standards, Arlington
- Organisation for Economic Co-operation and Development (OECD) (2005) *Teachers matter: attracting, developing, and recruiting effective teachers*. OECD, Paris
- Oser FK (1997) Sozial-moralisches Lernen [Social-moral learning]. In: Weinert FE (ed) *Psychologie des Unterrichts und der Schule*, vol 3. Hogrefe, Göttingen, pp 461–501
- Oser FK, Baeriswyl FJ (2001) Choreographies of teaching: bridging instruction to learning. In: Richardson V (ed) *Handbook of research on teaching*, 4th edn. American Educational Research Association, Washington, DC, pp 1031–1065
- Patrick H, Turner JC, Meyer DK, Midgley C (2003) How teachers establish psychological environments during the first days of school: associations with avoidance in mathematics. *Teach Coll Rec* 105(8):1521–1558. doi:[10.1111/1467-9620.00299](https://doi.org/10.1111/1467-9620.00299)
- Pekrun R, Helmke A (1991) Schule und Persönlichkeitsentwicklung: Theoretische Perspektiven und Forschungsstand [School and personality development: theoretical perspectives and state of research]. In: Fend H, Pekrun R (eds) *Schule und Persönlichkeitsentwicklung: Ein Resümee der Längsschnittforschung*. Enke, Stuttgart, pp 33–56
- Pintrich PR (2003) A motivational science perspective on the role of student motivation in learning and teaching contexts. *J Educ Psychol* 95(4):667–686. doi:[10.1037/0022-0663.95.4.667](https://doi.org/10.1037/0022-0663.95.4.667)
- Pohlmann B, Möller J (2010) Fragebogen zur Erfassung der Motivation für die Wahl des Lehramtsstudiums (FEMOLA) [Motivation for choosing teacher education questionnaire]. *Zeitschrift für Pädagogische Psychologie* 24(1):73–84. doi:[10.1024/1010-0652.a000005](https://doi.org/10.1024/1010-0652.a000005)
- Reyes P (1990) Individual work orientation and teacher outcomes. *J Educ Res* 83(6):327–335
- Rheinberg F (2006) *Motivation [Motivation]*. Kohlhammer, Stuttgart
- Richter D, Richter D, Kunter M, Anders Y, Klusmann U, Lüdtke O, Baumert J, Baumert J (2010) Inhalte und Prädiktoren beruflicher Fortbildung von Mathematiklehrkräften [Content and predictors of professional development activities of mathematics teachers]. *Empirische Pädagogik* 24(2):151–168
- Roth G, Assor A, Kanat-Maymon Y, Kaplan H (2007) Autonomous motivation for teaching: how self-determined teaching may lead to self-determined learning. *J Educ Psychol* 99(4):761–774. doi:[10.1037/0022-0663.99.4.761](https://doi.org/10.1037/0022-0663.99.4.761)

- Ryan RM, Deci EL (2000) Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemp Educ Psychol* 25(1):54–67. doi:[10.1006/ceps.1999.1020](https://doi.org/10.1006/ceps.1999.1020)
- Schiefele U (2008) Lernmotivation und Interesse [Motivation to learn and interest]. In: Schneider W, Hasselhorn M (eds) *Handbuch der Pädagogischen Psychologie*. Hogrefe, Göttingen, pp 38–49
- Schmitz GS, Schwarzer R (2000) Selbstwirksamkeitserwartung von Lehrern: Längsschnittbefunde mit einem neuen Instrument [Perceived self-efficacy of teachers: longitudinal findings with a new instrument]. *Zeitschrift für Pädagogische Psychologie* 14(1):12–25. doi:[10.1024//1010-0652.14.1.12](https://doi.org/10.1024//1010-0652.14.1.12)
- Schutz PA, Crowder KC, White VE (2001) The development of a goal to become a teacher. *J Educ Psychol* 93(2):299–308. doi:[10.1037//0022-0663.93.2.299](https://doi.org/10.1037//0022-0663.93.2.299)
- Seiz J (2009) *Lehrer-Selbstwirksamkeitserwartung unter Berücksichtigung des Professionswissens: Auswirkungen auf das berufliche Wohlbefinden und die Lernbereitschaft von Lehramtskandidatinnen und Lehramtskandidaten* [Teacher self-efficacy beliefs, controlling for professional knowledge: effects of teacher candidates' occupational well-being and willingness to learn]. Unpublished Diplom thesis, Free University of Berlin
- Shulman LS, Shulman JH (2004) How and what teachers learn: a shifting perspective. *J Curric Stud* 36(2):257–271. doi:[10.1080/0022027032000148298](https://doi.org/10.1080/0022027032000148298)
- Skaalvik EM, Skaalvik S (2007) Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *J Educ Psychol* 99(3):611–625. doi:[10.1037/0022-0663.99.3.611](https://doi.org/10.1037/0022-0663.99.3.611)
- Stein MK, Wang MC (1988) Teacher development and school improvement: the process of teacher change. *Teach Teach Educ* 4(2):171–187. doi:[10.1016/0742-051X\(88\)90016-9](https://doi.org/10.1016/0742-051X(88)90016-9)
- Stenlund KV (1995) Teacher perceptions across cultures: the impact of students on teacher enthusiasm and discouragement in a cross-cultural context. *Alberta J Educ Res* 41(2):145–161
- Sternberg RJ, Horvath JA (1995) A prototype view of expert teaching. *Educ Res* 24(6):9–17
- Tannenbaum RJ, Rosenfeld M (1994) Job analysis for teacher competency testing: identification of basic skills important for all entry-level teachers. *Educ Psychol Meas* 54(1):199–211. doi:[10.1177/0013164494054001026](https://doi.org/10.1177/0013164494054001026)
- Tittle CK (2006) Assessment of teacher learning and development. In: Alexander PA, Winne PH (eds) *Handbook of educational psychology*, vol 41, 2nd edn. Erlbaum, Mahwah, pp 953–980
- Tschannen-Moran M, Woolfolk Hoy A (2001) Teacher efficacy: capturing an elusive construct. *Teach Teach Educ* 17(7):783–805. doi:[10.1016/S0742-051X\(01\)00036-1](https://doi.org/10.1016/S0742-051X(01)00036-1)
- Watt HMG, Richardson PW (2007) Motivational factors influencing teaching as a career choice: development and validation of the FIT-Choice Scale. *J Exp Educ* 75(3):167–202. doi:[10.3200/JEXE.75.3.167-202](https://doi.org/10.3200/JEXE.75.3.167-202)
- Weinert FE (2001) A concept of competence: a conceptual clarification. In: Rychen DS, Salganik LH (eds) *Defining and selecting key competencies*. Hogrefe and Huber, Seattle, pp 45–65
- Wilhelm K, Dewhurst-Savellis J, Parker G (2000) Teacher stress? An analysis of why teachers leave and why they stay. *Teach Teach Theory Pract* 6(3):291–304
- Wolters CA, Daugherty SG (2007) Goal structures and teachers' sense of efficacy: their relation and association to teaching experience and academic level. *J Educ Psychol* 99(1):181–193. doi:[10.1037/0022-0663.99.1.181](https://doi.org/10.1037/0022-0663.99.1.181)
- Woolfolk Hoy A (2008) What motivates teachers? Important work on a complex question. *Learn Instr* 18(5):492–498. doi:[10.1016/j.learninstruc.2008.06.007](https://doi.org/10.1016/j.learninstruc.2008.06.007)