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Angaben zur Veröffentlichung / Publication details:

Nitsche, Sebastian, Oliver Dickhäuser, Michaela Fasching, and Markus Dresel. 2011. "Rethinking teachers' goal orientations: conceptual and methodological enhancements." *Learning and Instruction* 21 (4): 574–86. https://doi.org/10.1016/j.learninstruc.2010.12.001.

Rethinking teachers' goal orientations: Conceptual and methodological enhancements ☆

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1. Introduction

School isn't just a place for students to learn and achieve (Butler, 2007). Teachers, too, are required to provide high performance in their profession as well as to consistently learn and enhance their professional skills throughout their whole professional life (e.g., Borko, 2004). Considering this, teachers, just like their students, can be viewed as learners who may differ in the way they approach, interpret, and respond to the challenges of their profession. The concept of goal orientations, which recently gained attention within the description of teacher motivation (Butler, 2007; Dickhäuser, Butler, & Tönjes, 2007; Malmberg, 2008; Retelsdorf, Butler, Streblow, & Schiefele, 2010) attempts to cover these differences by contemplating different motivational orientations a learner may hold in achievement settings. In the present article, we try to refine this motivational approach for the teaching profession by raising some important conceptual shortcomings of former measures and suggesting an extended framework for the assessment of goal orientations for teaching.

1.1. Achievement goal orientations

During the past three decades, research on goal orientations has offered an important perspective of individuals' achievement motivation. These orientations were found to be associated with many cognitive, affective, motivational, and behavioral variables that are important for self-regulated learning behavior and achievement in multiple contexts, such as school, sports, and the workplace (see Duda, 2005; Kaplan & Maehr, 2007; Payne, Youngcourt, & Beaubien, 2007). Goal orientations can be conceptualized as fairly stable motivational orientations toward achievement tasks that guide behavior and actions in achievement related settings (e.g., Elliot & Murayama, 2008;

☆ This research was funded by a grant from the German Federal Ministry of Education and Research to Oliver Dickhäuser (01 HJ 0901) and Markus Dresel (01 HJ 0902).

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Urdan, 1997). They encompass the cognitive representation of one's purpose for engaging in achievement settings. Despite slightly differing concepts and labels (Ames, 1984; Dweck, 1986; Nicholls, 1984), most goal orientation approaches initially differentiated between two main goal orientations: *learning goal orientation* (alternately labeled as task orientation or mastery goal orientation), which refers to the striving to enhance one's own competencies, knowledge, and skills, and *performance goal orientation* (alternately labeled as ego orientation or ability goal orientation), which refers to the striving to demonstrate superior or hide inferior competencies and abilities (e.g., Elliot, 1999; Grant & Dweck, 2003). Because associations of performance goal orientation to learning and achievement outcomes have been quite ambiguous, some researchers have suggested that performance goal orientation has to be separated into an approach and an avoidance dimension (e.g., Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997; Vandewalle, 1997). Henceforth *performance approach goal orientation* indicates an individuals' focus on the demonstration of competence, whereas *performance avoidance goal orientation* characterizes the aim to hide a lack of competencies. Beyond learning and performance goal orientation, some additional goal orientations have been suggested, such as mastery avoidance goal orientation (striving not to lose competencies; Elliot & McGregor, 2001), extrinsic goal orientation (which aims at the attainment of an extrinsic incentive; Maehr, 1984), social goal orientation (which refers to interpersonal reasons for achievement behavior; Maehr & Nicholls, 1980), or work avoidance goal orientation (where individuals are motivated to do their work with minimal effort; Nicholls, 1989; Nicholls, Patashnick, & Nolen, 1985). Within this article we stick to the goal dimensions already identified in the teaching profession (Butler, 2007; Dickhäuser et al., 2007).

1.2. Goal orientations of teachers and teacher trainees

Butler (2007) described school as an *achievement arena*, not only for students but also for teachers, and suggested the application of the goal orientation approach to the study of teacher motivation. She developed a scale assessing goal orientations and tested it using a total sample of 320 teachers. The results confirmed a four-factor structure of goal orientations reflecting teachers' pursuit of learning goals (assessed by responses to what makes the participating teachers feel they had a successful day, for instance "I learned something new about teaching or about myself as a teacher"), performance approach goals (assessed by items, such as "The principal commended me for having higher teaching ability than most of my colleagues"), performance avoidance goals (assessed by items like "No one asked a question that I could not answer") and work avoidance goals (assessed by items like "The material was easy and I did not have to prepare lessons"). In addition to these findings, Dickhäuser et al. (2007) suggested that the goal orientation approach may be a useful framework for the description of motivation in teacher trainees, as well. Using confirmatory factor analysis, they found the same four-factor structure of goal orientations that Butler (2007) had identified for in-service teachers.

In validating their scales, Butler (2007) and Dickhäuser et al. (2007) examined associations of goal orientations with the perception of help-seeking. Studies of students had previously demonstrated that goal orientations were related to perceptions of help-seeking in a theoretically meaningful way (e.g., Tanaka, Murakami, Okuno, & Yamauchi, 2002). Given that help-seeking can be seen as an important strategy for self-regulated learning (Tanaka et al., 2002), it may also play a crucial role in the development of competence in in-service teachers and teacher trainees. Although both studies focused on different phases of the teacher profession and were conducted in different countries, Butler (2007) and Dickhäuser et al. (2007) found quite similar results, indicating that in-service teachers and teacher trainees with a higher learning goal orientation perceived help-seeking as more beneficial for learning and professional development, whereas a higher performance avoidance goal orientation was associated with a higher perception of help-seeking as threatening to self-esteem.

These results suggest that teachers' goal orientations are an important factor for teachers' individual development of competence. Considering this, goal orientations may be similarly related to further competence-related measures, such as perceived competence or teachers' self-efficacy expectations. To date, no study has examined the association of teachers' goal orientations to their self-efficacy expectations, although self-efficacy was discussed as an important construct within the teacher profession (Skaalvik & Skaalvik, 2008), and even though it has already proved to be meaningfully associated with goal orientations in other achievement contexts (see Midgley et al., 1998; Payne et al., 2007). In the present article, we attempt to fill this gap by examining associations of goal orientations with both the perception of help-seeking and self-efficacy for teaching.

1.3. Shortcomings of existing measures

Although both existing measures (Butler, 2007; Dickhäuser et al., 2007) consistently discriminate the same four goal orientations for teaching, they slightly differ in their conceptualizations. Additionally, both measures contain some conceptual problems. Butler (2007), for example, assessed goal orientations for teaching by asking teachers for their definition of success ("… when would you feel that you had a successful day?") and not goal pursuit, per se. While goal orientations are commonly assumed to reflect purposeful commitments (see Elliot & Murayama, 2008), the definition of success clearly does not meet this criterion. Furthermore, some items used to measure performance approach and avoidance goal orientations are not limited to the teachers themselves, but require others to act or perform in a specific way (e.g., "My classes did better than those of other teachers on an exam").

The goal orientation scale used by Dickhäuser et al. (2007) is more precise in the way goal orientations are operationalized. Nonetheless, this scale does not clearly separate goal orientations from more broad valuations within the item stem ("In my

lessons, it is important to me …"), and some items refer to the actions of others rather than to the teachers themselves ("In my lessons, it is important to me to get better feedback from pupils/parents than others."). Furthermore, the item stem of this scale is restricted to goal orientations during teaching. Although consequences of teachers' goal orientations might be of major interest concerning teaching, goal orientations themselves may also be relevant to other job-related situations, such as interactions with colleagues or the principal, while taking part in a professional training, or while preparing the next lesson at home. With developing a new goal orientation questionnaire, it was our aim to overcome these shortcomings. In contrast to Butler (2007), we use the term "learning goal orientation" (introduced by Dweck, 1986) instead of "mastery goal orientation" to emphasize that the development of competencies is an ongoing process. To stay in line with Dweck's (1986) notation, we further prefer the term "performance approach/avoidance goal orientation" instead of "ability approach/avoidance goal orientation".

1.4. Extending goal orientations for teaching

We suggest a conceptual extension of the goal orientation approach for the teacher profession. This extension may be helpful in exploring and understanding the role of goal orientations for teachers' experiences and behavior more accurately. Going beyond previous conceptions, we extended learning goal orientation and both performance goal orientations in the following ways (see also Fig. 1).

1.4.1. Extending learning goal orientation

Since the acquisition of knowledge and professional skills is crucial to improve teaching (e.g., Borko, 2004; Borko & Putnam, 1996), teachers' individual pursuit of learning goals (which directly aims at the enhancement of one's competence and knowledge) presumably plays an important role in their self-regulated learning and professional development. Frameworks of teacher learning and professional knowledge suggests at least three domains of teacher knowledge: *pedagogical knowledge*, which refers to knowledge about general (subject-independent) pedagogical concepts, processes and techniques, s*ubject matter content knowledge*, which can be understood as teachers' in-depth knowledge about the subject matter, and *pedagogical content knowledge*, which reflects teachers' knowledge of how to make the subject comprehensible to others (Borko & Putnam, 1996; Krauss, Baumert, & Blum, 2008; Shulman, 1986; Tatto et al., 2008).

Given that professional knowledge and competence of teachers consists of multiple domains, it would be an oversimplification to postulate a desire of teachers to extend their knowledge and competence without taking the domains of knowledge into account. Furthermore, there is first evidence from studies on students suggesting that learning goal orientation seems to be different, depending on the competence domain (Bong, 2001, 2004; Sparfeld, Buch, Wirthwein, & Rost, 2007). Thus, in order to account for the previously mentioned three dimensions of teacher knowledge, we postulate three facets of learning goal orientation, representing teachers' individual striving to extend pedagogical knowledge and skills (*pedagogical learning goal orientation*), subject matter content knowledge (*content learning goal orientation*), and pedagogical-content knowledge and skills (*pedagogical-content learning goal orientation*). Despite the suggested differentiation of learning goal orientation, we expect these competence facets to be interrelated and converge to an overall learning goal orientation factor, reflecting the generalized striving for competence acquisition (see Fig. 1).

1.4.2. Extending performance approach and avoidance goal orientation

Most definitions of performance goals comprise the demonstration of competence toward oneself or relevant others. For example, according to Elliot (1999, 2005), performance goals may contain aspects of self-assessment (if demonstrating to oneself) as well as self-presentation (if demonstrating to others). Considering that different others may react differently to different kinds of achievement, we are convinced that it is theoretically important to distinguish between addressees of performance goals within the goal conception. Only recently, Ziegler, Dresel, and Stoeger (2008) put first effort into the differentiation of facets of performance goals, depending on addressees. They empirically verified that students' pursuit of performance goals directed toward parents, classmates, teachers, and themselves were differentially associated with several external criteria. For example, they found that the perceived utility of learning (task value) was positively related

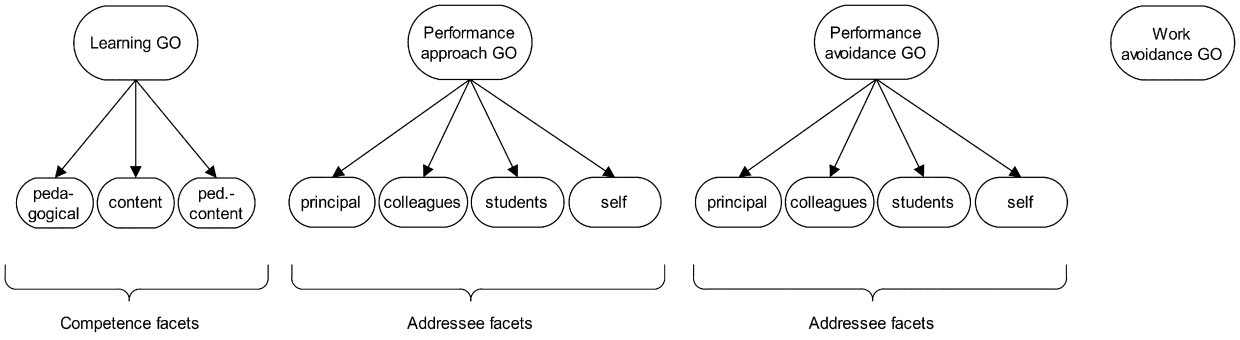

Fig. 1. Conceptual extension of the goal orientation approach for teaching. GO = goal orientation. In the case of teacher trainees, the terms "fellow teacher trainees" and "instructor" were used instead of "colleagues" and "principal".

to classmate- and self-addressed performance goal pursuit, but negatively to parent- or teacher-addressed performance goal pursuit. Other external criteria, such as academic self-concept, effort expenditure, or test anxiety could only be predicted by performance goal orientation toward a particular external addressee group. The authors suggest that the differentiation among various addressees supplements the classic approach-avoidance distinction and may be of similar importance. Following Ziegler et al.'s (2008) idea of different addressees, we extended performance approach and performance avoidance goal orientation for teaching to distinguish between three external addressee facets and one self-directed facet. For in-service teachers, we chose one facet to be addressed to the principal, one to be addressed to the colleagues, and one to be addressed to their students. Similarly for teacher trainees, the facets are addressed to the instructor, fellow teacher trainees, and the students. As already mentioned, beyond differential orientations to relevant others, teachers themselves may be an addressee of performance goals. Self-directed performance goal orientation encompasses the desire to be satisfied with one's own performances or wanting to avoid dissatisfaction with bad performances (Ziegler et al., 2008). Despite this extension, we expect all performance approach goal addressee facets to merge to a higher-order performance approach goal orientation factor and all performance avoidance goal addressee facets to merge to a higher-order performance avoidance goal orientation factor (see Fig. 1).

In summary, we extended learning goal orientation to reflect three different competence facets (pedagogical, content, and pedagogical-content) and we extended performance approach, as well as performance avoidance goal orientation, to be directed to four addressee groups (principal/instructor, colleagues/fellow teacher trainees, students, and oneself). Following the classification of goal orientations previously found in teachers (Butler, 2007; Dickhäuser et al., 2007) we additionally included work avoidance as a distinct goal class (see Fig. 1).

1.5. Purpose and hypotheses

The present study aims to illustrate and empirically test an extended framework of teachers' goal orientations. To verify this new framework, a new questionnaire for the assessment of teachers' goal orientations was developed that takes our theoretical and conceptual considerations into account. It was hypothesized that the specified model of goal orientations could be verified and would be superior to several alternative models (Hypothesis 1). We assumed the questionnaire to work equally well for in-service teachers and teacher trainees (Hypothesis 2).

To further validate the specified measure, differential associations with external criteria were examined. Based on our theoretical extension, there may be two distinct levels of goal orientations to be analyzed. On a higher-order level, goal orientations may be analyzed in form of higher-order factors whereas on a lower-order level, facets of learning and performance goal orientations may be analyzed (see Fig. 1).

1.5.1. Associations between higher-order factors and external criteria

Examinations applied at the higher-order level should result in a pattern of associations between goal orientations and external criteria comparable to past research. At this level, we examined associations with two competence-related measures: self-efficacy for teaching and perceptions of help-seeking. In line with findings in other achievement settings (Anderman, Urdan, & Roeser, 2003; Midgley et al., 1998; Payne et al., 2007; Skaalvik, 1997) we expected *self-efficacy* to be positively predicted by learning goal orientation and negatively predicted by performance avoidance goal orientation and work avoidance (Hypothesis 3). Because findings for the association between performance approach goal orientation and self-efficacy were mixed, no particular assumption was made for this relation.

In accordance with results from Butler (2007) and Dickhäuser et al. (2007), *perception of help-seeking as beneficial* should be positively predicted by learning goal orientation (Hypothesis 4), whereas *perception of help-seeking as threatening* should be positively predicted by performance avoidance goal orientation (Hypothesis 5). No meaningful associations were assumed between perceptions of help-seeking and performance approach goal orientation or work avoidance. All assumptions applied to teacher trainees and in-service teachers in the same way.

1.5.2. Associations between lower-order factors and external criteria

Analyses on the lower-order level establish the opportunity to examine particular associations between specific competence facets (in the case of learning goal orientation) or addressee facets (in the case of performance approach and avoidance goal orientation), and corresponding constructs of interest. At this level, we assumed learning goal competence facets to be differentially associated with perceived benefits of help-seeking, and performance avoidance goal addressee facets to be differentially associated with perceived threat of help-seeking.

1.5.2.1. Learning goal facets and perceived benefits of help-seeking. We assumed that seeking help from colleagues may be perceived as differentially useful, depending on the learning goal facet, teachers pursue. Whereas the development of subject matter content knowledge does not necessarily require a critical reflection of one's own teaching behavior, since it is mainly concerned with the in-depth understanding of a theme or subject, the reflection and critical examination of one's own teaching practice can be seen as a crucial part of the development of pedagogical and pedagogical-content knowledge and competencies. For teachers who primarily strive to enhance these more teaching-related competence domains, discourse with colleagues may be considered an important opportunity to identify unconscious schemes and behavioral patterns and pick up new instructional strategies and ideas. Thus, we assumed that the perception of help-seeking as beneficial to be mainly predicted by pedagogical learning goal orientation and pedagogical-content learning goal orientation. The association between content learning goal orientation and the perception of seeking

help as beneficial should be less pronounced (Hypothesis 6). The same assumption applied for teacher trainees.

1.5.2.2. Performance avoidance goal facets and perceived threat of help-seeking. As mentioned before, seeking help from other teachers may be perceived as a potential threat to self-esteem, whereby this perception is primarily predicted by performance avoidance goal orientation (Butler, 2007; Dickhäuser et al., 2007). By considering different addressees of performance avoidance goal orientation, it is now possible to examine this association in more detail. Given that colleagues are the main source of help for teachers, perception of help-seeking as threatening was assumed to be mainly predicted by performance avoidance goal orientation toward colleagues (Hypothesis 7). The same assumption again applied to teacher trainees.

2. Method

2.1. Participants and procedure

A total of 495 teacher trainees (25.3% male) and 224 in-service teachers (32.9% male) participated in the study. The percentage of male teachers corresponds with the division of teachers in Germany (30.4% male; Statistisches Bundesamt, 2010).

The average age of the teacher trainees was 27.6 years ($SD = 3.9$) and the time in traineeship ranged from 0.5 to 2.5 years ($M = 1.0$, $SD = .55$). They prepared for teaching at a primary or secondary school within the German school system[1]: 11.1% prepared for elementary schools, 7.9% for lower track secondary schools ("Hauptschule"), 23.8% for intermediate track secondary schools ("Realschule"), 54.7% for academic track secondary schools ("Gymnasium") and 2.4% prepared for teaching in another school. For the purpose of scale development and validity testing, the sample of teacher trainees was randomly split up ($N_1 = 248$, $N_2 = 247$; see Section 3.1).

For in-service teachers, the average age was 41.4 years ($SD = 11.6$) and the length of service as a teacher ranged from 0 to 40 years ($M = 13.7$, $SD = 11.8$). The teachers were employed in all tracks of the German school system: 12% in elementary schools, 20.4% in lower track secondary schools ("Hauptschule"), 18.8% in intermediate track secondary schools ("Realschule"), 45.5% in academic track secondary schools ("Gymnasium") and 3.1% in another school.

All participants were contacted through e-mail, forwarded by the head of the school or training school with the request to fill in an online questionnaire concerning their goal orientations and vocation-related attitudes. Participants were assured that their responses would remain confidential.

2.2. Measuring instruments

2.2.1. Goal orientations for teaching

The new goal orientation questionnaire was developed in three steps. *First*, we reviewed the existing measures of goal orientations for teaching (Butler, 2007; Dickhäuser et al., 2007) and selected all item contents that were in line with our definition of goal orientations. Additionally, several new items were created. In accordance with our theoretical extension of goal orientations, learning goal orientation was adapted to reflect the striving for a particular type of knowledge and competence (pedagogical knowledge, subject matter content knowledge, and pedagogical-content knowledge). Additionally, performance approach and avoidance items were systematically parallelized across all addressees (principal/instructor, colleagues/fellow teacher trainees, students, self). In a *second step*, items were revised with regard to some conceptual shortcomings of former measures. Accordingly, the following revisions were conducted: (1) In order to overcome a confounded assessment of goal orientations with goal-related concepts, such as value ("In my lessons, it is important to me, …", Dickhäuser et al., 2007) or definition of success ("When would you feel, you had a successful day?", Butler, 2007), we chose a uniform goal-based stem for all items ("In my vocation, I aspire …"). Furthermore, all items covering concerns or affective contents, as well as basic needs or motives, were revised. (2) Elliot and Murayama (2008) argue that the responses to performance goal items can differ depending on participants' perceived competencies, especially when item formulation focuses on extreme groups. As some of the initial items were biased in this regard (e.g., "The principal commended me for having higher teaching ability than *most* of my colleagues", Butler, 2007), items were corrected by omitting these qualifiers. (3) Items that referred to the action of another person or group other than the teachers themselves (e.g., "My classes did better than those of other teachers on an exam", Butler, 2007) were excluded or revised, restricting item formulations to only the teachers' own actions. (4) Item formulations were revised to be understood only in terms of one singular goal dimension. All words were changed that potentially applied to more than one goal dimension, as well as items that put one goal in competition to another. The final item pool for the pilot version of the measure contained 72 items (6 items for each facet).[2] A 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was used for each item.

[1] All teacher candidates in Germany have to pass a two phase qualification process of teacher education to become a regular teacher. The first phase includes university-based studies, where they mainly acquire subject matter knowledge and theoretical knowledge about teaching and learning. This phase lasts 3–5 years, depending on the aspired school type and the federal state. Persons in this phase are referred to as student teachers. After graduating, a more practically orientated pre-service teacher training phase ("Referendariat") of 1.5–2 years takes place, during which prospective teachers are responsible for their own classes, but are still under the supervision of instructors. Persons in this phase are referred to as teacher trainees. After successfully graduating from this second phase of teacher education, one becomes a regular in-service teacher.

[2] The pilot version of the questionnaire with all 72 items can be obtained from the first author.

2.2.2. Self-efficacy for teaching

Participants' efficacy expectations for teaching were assessed with eight items from the German version of the teacher self-efficacy scale (Schwarzer & Hallum, 2008). Responses ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). An item example is "When I try really hard, I am able to reach even the most difficult students". The internal consistency (Cronbach's alpha) of this scale was $\alpha = .65$ (for teacher trainees[3]) and $\alpha = .73$ (for in-service teachers).

2.2.3. Teacher perception of help-seeking

Eight items from the help-seeking measure used by Dickhäuser et al. (2007) were applied to assess perceived benefits and perceived threat of help-seeking. Perceived benefits reflect the perception of help-seeking as a useful strategy that promotes learning (4 items; e.g., "Asking others for help makes the work as a teacher more interesting"; $\alpha = .59$ for teachers trainees; $\alpha = .83$ for in-service teachers). Perceived threat reflects a perception of help-seeking as an endangerment to self-esteem in that the need for help could be interpreted as evidence of low ability and, thus, might lead to negative reactions from others (4 items, e.g., "Asking for help as a teacher only shows your weaknesses"; $\alpha = .76$ for teachers trainees; $\alpha = .79$ for in-service teachers). Participants rated their agreement on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

3. Results

3.1. Item reduction and reliability analysis

For the sake of parsimony, we reduced the pilot goal orientation questionnaire from 72 items to 36 items (3 items for each facet). For this purpose, the total sample of teacher trainees was randomly split into two subsamples. The first subsample ($N_1 = 248$) was used to conduct the item reduction process, whereas the second subsample ($N_2 = 247$) was utilized for all subsequent analyses. Using the first subsample, we applied reliability analysis with stepwise exclusion of the items with the lowest corrected item-total correlation.[4] Table 1 contains the descriptive statistics and corrected item-total correlations for the remaining 36 items as well as the descriptive statistics and internal consistencies for the goal orientation scales. As can be seen, on the higher-order level, the internal consistencies measured by Cronbach's alpha, were good (α between .75 and .89) for in-service teachers as well as for teacher trainees. Additionally, even the lower-order scales reached acceptable to high internal consistencies (α between .65 and .91) for in-service teachers as well as for teacher trainees.

3.2. Factor structure of teacher goal orientations

To validate the postulated structure of goal orientations, we performed hierarchical confirmatory factor analyses using LISREL 8.54 (Jöreskog & Sörbom, 2003). All analyses were based on covariance matrices and used maximum-likelihood estimation. In addition to reporting the chi-square test statistic, we report the Root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), the comparative fit index (CFI) and the Standardized root mean square residual (SRMR). The following criteria were used to evaluate the adequacy of model fit: $\chi^2/df < 2$ (Hair, Anderson, Tatham, & Black, 1995), RMSEA $\leq .08$, CFI $\geq .95$, TLI $\geq .95$ and SRMR $\leq .08$ (Hu & Bentler, 1999). We additionally used the Akaike information criterion (AIC) when comparing alternative models (lower values indicate a better fit).

3.2.1. Confirmatory factor analyses

The first confirmatory factor analysis examined the hypothesized model (see Fig. 2a). It contained 36 manifest items, 12 latent lower-order factors, and four latent higher-order factors. Within the measurement model, 9 items were used to indicate learning goal facets (3 items per competence facet), 12 items were used to indicate performance approach goal facets (3 items per addressee facet), 12 items were used to indicate performance avoidance goal facets (3 items per addressee facet), and 3 items were used to indicate work avoidance goal orientation. Within the structure model, goal orientation facets were modeled to merge in their respective higher-order factors. All three learning goal competence facets load on one higher-order learning goal orientation factor. Performance approach and performance avoidance goal addressee facets load on their respective higher-order factors of performance approach goal orientation and performance avoidance goal orientation. We modeled work avoidance goal orientation as higher-order factor by setting the factor loading to one and the variance of the lower-order factor to zero. All higher-order factors were free to correlate. Because we assume facets comprising the same addressee group to have more in common than their higher-order factors of performance approach and avoidance goal orientation, addressee facets were additionally allowed to correlate pairwise (see Fig. 2a).

Testing the hypothesized model indicated a good model fit for teacher trainees as well as in-service teachers (see Table 2).[5] Correlations between higher-order factors of goal orientations were comparable to previous measures and can be seen in Table 3. Performance approach and performance avoidance goal orientation yielded the highest interrelation in

[3] In the case of teacher trainees, internal consistencies of self-efficacy and perceptions of help-seeking only refer to the second subsample ($N_2 = 247$).

[4] In order to keep parallel item formulations regarding different addressees within the performance approach and avoidance goal orientation, the corrected item-total correlations of all parallel items were averaged, and the parallel item pairs with the lowest average item-total correlation scores were excluded stepwise.

[5] Completely standardized factor loadings of the manifest items on the lower-order factors were all significant, and greater than or equal to .53 (teacher trainees) or .56 (in-service teachers). All factor loadings of the lower-order factors on the higher-order factors of goal orientation were significant, too, and above or equal to .69 (teacher trainees) or .59 (in-service teachers).

Table 1
Descriptives of Goal Orientation Items and Scales.

Scales and items (item stem: "In my vocation, I aspire…")	Teacher trainees ($N = 247$)			In-service teachers ($N = 224$)		
	M	*SD*	r_{it}	*M*	*SD*	r_{it}
Learning goal orientation ($\alpha_{trainees} = .75$; $\alpha_{teachers} = .78$)	**4.42**	**0.42**	–	**4.19**	**0.55**	–
Pedagogical ($\alpha_{trainees} = .68$; $\alpha_{teachers} = .81$)	**4.53**	**0.46**	–	**4.31**	**0.64**	–
… to increasingly understand complicated class situations.	4.46	0.58	.49	4.17	0.77	.69
… to constantly deal better with critical class situations.	4.55	0.57	.51	4.37	0.80	.64
… to improve my pedagogical knowledge and competence.	4.58	0.59	.48	4.40	0.68	.66
Content ($\alpha_{trainees} = .68$; $\alpha_{teachers} = .82$)	**4.35**	**0.57**	–	**4.07**	**0.73**	–
… to get perfectly acquainted with my subject.	4.52	0.56	.54	4.17	0.75	.68
… to really comprehend the contents of my subject.	4.13	0.88	.48	3.93	0.91	.67
… to improve my content knowledge and competence.	4.39	0.70	.52	4.10	0.86	.71
Pedagogical-content ($\alpha_{trainees} = .65$; $\alpha_{teachers} = .75$)	**4.39**	**0.51**	–	**4.19**	**0.61**	–
… to really comprehend the process of knowledge transfer in my subject.	4.38	0.68	.50	4.03	0.83	.58
… to get new ideas on how to convey knowledge in my subject.	4.50	0.61	.44	4.28	0.71	.57
… to improve my pedagogical-content knowledge and competence.	4.40	0.71	.45	4.25	0.68	.62
Performance approach goal orientation ($\alpha_{trainees} = .85$; $\alpha_{teachers} = .89$)	**2.43**	**0.87**	–	**2.34**	**0.87**	–
Colleagues[a] ($\alpha_{trainees} = .88$; $\alpha_{teachers} = .89$)	**1.99**	**0.91**	–	**2.03**	**0.95**	–
… to demonstrate my colleagues that I know more than other teachers.	1.90	0.99	.76	1.84	0.97	.78
… to show my colleagues that I deal better with critical lessons than other teachers.	2.11	1.04	.79	2.20	1.09	.77
… my colleagues to realize that I teach better than other teachers.	1.96	1.01	.77	2.07	1.08	.79
Principal[b] ($\alpha_{trainees} = .91$; $\alpha_{teachers} = .91$)	**2.68**	**1.05**	–	**2.33**	**0.99**	–
… to demonstrate my principal that I know more than other teachers.	2.70	0.83	.83	2.34	1.11	.83
… to show my principal that I deal better with critical lessons than other teachers.	2.58	1.00	.85	2.21	1.02	.86
… my principal to realize that I teach better than other teachers.	2.76	0.75	.77	2.45	1.09	.78
Students ($\alpha_{trainees} = .91$; $\alpha_{teachers} = .84$)	**2.31**	**1.04**	–	**2.35**	**0.96**	–
… to demonstrate my students that I know more than other teachers.	2.21	1.11	.81	2.19	1.07	.66
… to show my students that I deal better with critical lessons than other teachers.	2.33	1.12	.84	2.49	1.13	.77
… my students to realize that I teach better than other teachers.	2.38	1.15	.80	2.37	1.09	.70
Self ($\alpha_{trainees} = .90$; $\alpha_{teachers} = .88$)	**2.75**	**1.14**	–	**2.66**	**1.08**	–
… to demonstrate myself that I know more than other teachers.	2.76	1.32	.78	2.52	1.23	.77
… to show myself that I deal better with critical lessons than other teachers.	2.81	1.23	.83	2.83	1.20	.76
… to prove myself that I teach better than other teachers.	2.68	1.21	.79	2.62	1.19	.76
Performance avoidance goal orientation ($\alpha_{trainees} = .80$; $\alpha_{teachers} = .85$)	**2.57**	**0.83**	–	**2.48**	**0.81**	–
Colleagues[a] ($\alpha_{trainees} = .85$; $\alpha_{teachers} = .86$)	**2.14**	**0.94**	–	**2.14**	**0.93**	–
… to conceal from my colleagues when I do something less satisfying than other teachers.	1.97	1.00	.77	1.92	0.96	.77
… to not show my colleagues when I have more troubles to meet the job demands than other teachers.	2.06	1.02	.74	2.04	0.99	.75
… my colleagues not to believe I would master my job less sufficient than other teachers.	2.37	1.19	.68	2.44	1.19	.72
Principal[b] ($\alpha_{trainees} = .87$; $\alpha_{teachers} = .90$)	**2.91**	**1.07**	–	**2.69**	**1.04**	–
… to conceal from my principal when I do something less satisfying than other teachers.	2.74	1.19	.80	2.50	1.10	.83
… to not show my principal when I have more troubles to meet the job demands than other teachers.	2.74	1.15	.79	2.58	1.10	.85
… my principal not to believe I would master my job less sufficient than other teachers.	3.27	1.26	.69	2.98	1.21	.72
Students ($\alpha_{trainees} = .88$; $\alpha_{teachers} = .84$)	**2.53**	**1.08**	–	**2.53**	**0.99**	–
… to conceal from my students when I do something less satisfying than other teachers.	2.45	1.16	.80	2.31	1.08	.75
… to not show my students when I have more troubles to meet the job demands than other teachers.	2.47	1.18	.84	2.52	1.10	.75
… my students not to believe I would master my job less sufficient than other teachers.	2.65	1.26	.67	2.76	1.22	.63
Self ($\alpha_{trainees} = .82$; $\alpha_{teachers} = .79$)	**2.70**	**1.08**	–	**2.57**	**0.95**	–
… to not have to admit to myself when I do something less satisfying than other teachers.	2.41	1.19	.73	2.27	1.06	.71
… to not have to concede to myself when I have more troubles to meet the job demands than other teachers.	2.50	1.26	.80	2.27	1.02	.74
… to not have to object to myself I would master my job less sufficient than other teachers.	3.18	1.30	.53	3.17	1.30	.48
Work avoidance goal orientation ($\alpha_{trainees} = .83$; $\alpha_{teachers} = .79$)	**2.59**	**1.03**	–	**2.39**	**0.97**	–
… not to have to work too hard.	2.69	1.20	.66	2.55	1.14	.58
… that the work is easy.	2.70	1.20	.69	2.55	1.18	.66
… to get through the day with little effort.	2.38	1.19	.72	2.07	1.15	.64

Note. α = Cronbach's alpha. r_{it} = corrected item–total correlation. Values and names of scales are in boldface. Work avoidance and goal orientation facets were built by averaging the respective items. Main scales of learning, performance approach and performance avoidance goal orientation were built by averaging the respective facet-scores.

[a] in the teacher trainee version of the questionnaire, the term *fellow teacher trainees* was used instead of *colleagues*.

[b] in the teacher trainee version of the questionnaire, the term *instructor* was used instead of *principal*.

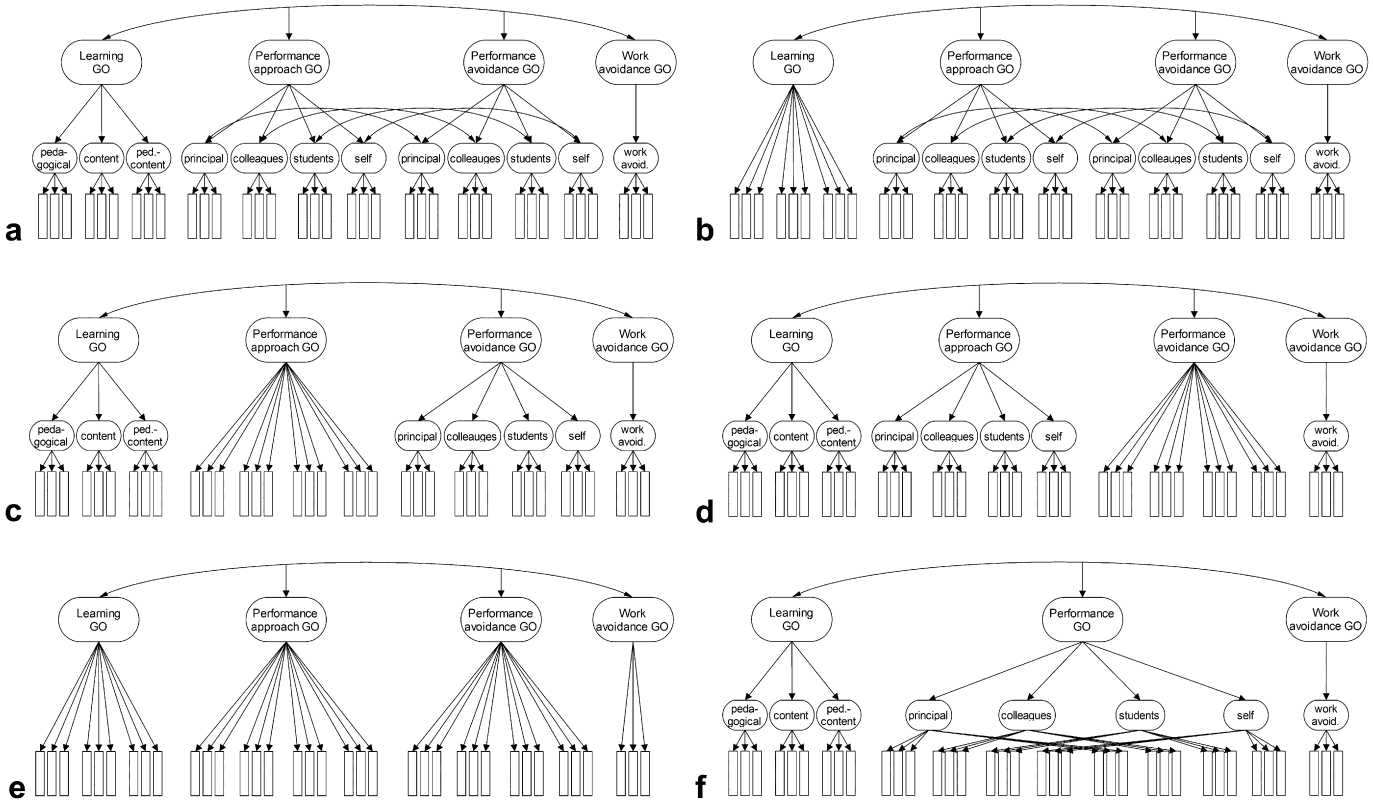

Fig. 2. Models regarding the factorial structure of teachers' goal orientations: (a) Hypothesized Model A with all facets included, (b) Model B, neglecting learning goal competence facets, (c) Model C, neglecting performance approach goal addressee facets, (d) Model D, neglecting performance avoidance goal addressee facets, (e) Model E, general factor model, neglecting all facets and (f) Model F, neglecting approach-avoidance distinction. In the case of teacher trainees, the terms "fellow teacher trainees" and "instructor" were used instead of "colleagues" and "principal". GO = goal orientation.

teacher trainees and in-service teachers. Furthermore, work avoidance goal orientation and performance avoidance goal orientation were positively correlated in both groups, though on a lower level. No associations could be found between learning goal orientation and both performance goal orientations.

3.2.2. Comparison with alternative models

To further examine the factorial validity of our model, we tested five alternative models against our hypothesized Model A (see Fig. 2b–e): Models B–E differed in their assumption concerning the facets of goal orientations. In Model B, no facets of learning goal orientation were postulated. Model C

Table 2
Results from confirmatory factor analyses testing different models.

Model	χ^2	*df*	χ^2/df	RMSEA	CFI	TLI	SRMR	AIC	Model comparison: Model A versus…		
									$\Delta\chi^2$	Δdf	*p*
Teacher trainees (N = 247)											
Model A (hypothesized)	1099.32	573	1.92	.061	.97	.97	.061	1285.23	–	–	–
Model B	1149.51	576	2.00	.064	.97	.96	.062	1329.51	50.19	3	<.001
Model C	2321.24	581	4.00	.110	.92	.91	.083	2491.24	1221.92	8	<.001
Model D	2273.67	581	3.91	.109	.91	.91	.080	2443.67	1174.35	8	<.001
Model E	3748.71	589	6.36	.148	.87	.86	.12	3902.71	2649.39	16	<.001
Model F	1526.64	584	2.61	.081	.95	.95	.058	1690.64	427.32	11	<.001
In-service teachers (N = 224)											
Model A (hypothesized)	987.69	573	1.72	.057	.97	.97	.062	1173.69	–	–	–
Model B	1168.84	576	2.03	.068	.96	.96	.066	1348.84	181.15	3	<.001
Model C	1596.12	581	2.75	.089	.94	.94	.073	1766.12	608.43	8	<.001
Model D	1604.69	581	2.76	.089	.94	.93	.070	1774.69	617.00	8	<.001
Model E	2413.02	589	4.10	.118	.91	.90	.11	2567.02	1425.33	16	<.001
Model F	2380.79	584	4.08	.117	.93	.93	.070	2544.79	1393.10	11	<.001

Note. Models are pictured in Fig. 2. RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean squared residual; AIC = Akaike information criterion. $\Delta\chi^2$ and Δdf represent the changes in chi-square and degree of freedoms between the hypothesized model A and the respective alternative model.

Table 3
Matrix of latent correlations.

		1	2	3	4
1	Learning goal orientation	–	−.01	−.05	−.20*
2	Performance approach goal orientation	−.06	–	.76*	.15
3	Performance avoidance goal orientation	−.09	.88*	–	.23*
4	Work avoidance goal orientation	−.06	.24*	.28*	–

Note. Values below the diagonal represent the correlation matrix for teacher trainees and values above the diagonal represent the correlation matrix for in-service teachers.
*$p < .05$.

and D assumed that all items measuring performance approach goal orientation (Model C) or performance avoidance goal orientation (Model D) load onto a single factor, irrespective of their addressee facet. In Model E, no facets were assumed at all, reflecting the dimensions of goal orientations that are usually measured. Finally, Model F postulated that the classic approach-avoidance distinction in performance goal orientation can be neglected (Fig. 2f).

The fit indices of the analyzed models indicate that none of the alternative models provided a better fit to the data than the hypothesized model both for teacher trainees and for in-service teachers (see Table 2). In both groups, the Akaike information criterion for the hypothesized model was lower than for the competing models, identifying the hypothesized model to be the most parsimonious one. Additionally, all alternative models were compared to the hypothesized model using chi-square tests (e.g., Byrne, 1998). Consistent with Hypothesis 1, results from these analyses indicated that the hypothesized model provided a significantly better fit to the data than any of the alternative models (see Table 2).

3.2.3. Measurement invariance

To determine if the new goal orientation questionnaire works equally well with teacher trainees and in-service teachers, tests for measurement invariance were conducted (Steenkamp & Baumgartner, 1998).

First, we examined *configural invariance* (whether the same factor structure is most salient in both groups). Given that the confirmatory factor analyses established good model fit for the hypothesized model, and proved superior to a set of alternative models in teacher trainees and in-service teachers alike (see Table 2), configural invariance was established (cf. Steenkamp & Baumgartner, 1998). Second, a model in which all factor loadings were constrained to be equal across the groups was compared to the unrestricted model, to test *metric invariance* (whether teacher trainees and in-service teachers interpreted all items in the same way; Steenkamp & Baumgartner, 1998). Results indicated a non-significant drop in model fit and, therefore, the existence of metric invariance (see Table 4). Finally, a model in which all intercepts were constrained to be equal across groups was conducted to test *scalar invariance* (whether both groups used the response scale in a similar way; Steenkamp & Baumgartner, 1998). Results suggested support for scalar invariance. Although the chi-square difference test was significant ($\Delta\chi^2 = 147.63$, $\Delta df = 36$, $p < .001$), which can easily be the case in large samples, the decrease in CFI was below .01, indicating that the null hypothesis of invariance should not be rejected (see Cheung & Rensvold, 2002). Given the level of measurement invariance supported by the analyses, group differences in factor means and observed means are not contaminated by differential additive response bias, and may be compared between teacher trainees and in-service teachers (Gregorich, 2006). In line with Hypothesis 2, results suggest that the questionnaire works equivalently across teacher trainees and in-service teachers.

Table 4
Results for measurement invariance tests across teacher trainees and in-service teachers.

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	ΔCFI
Configural invariance (equal factor structure)	2087.01	1146	–	–	–	.97	–
Metric invariance (equal factor loadings)	2115.08	1178	28.07	32	.666	.97	<.01
Scalar invariance (equal intercepts)	2262.71	1214	147.63	36	<.001	.97	<.01

Note. Model constraints are in parenthesis. $\Delta\chi^2$, Δdf and ΔCFI represent the changes in chi-square, degree of freedoms and comparative fit index, respectively, between each hierarchical model. $N_{\text{teacher trainees}} = 247$; $N_{\text{in-service teachers}} = 224$.

3.3. Associations with external criteria

To determine convergent and divergent validity of the new measure, full structural equation models were conducted for teacher trainees and in-service teachers.

3.3.1. Higher-order goal orientation factors

To examine the relationships between higher-order goal orientation factors and the external criteria (self-efficacy for teaching, perceived benefits of help-seeking, perceived threats of help-seeking), we expanded the hypothesized model A, which was most supported by the data, to a full structural equation model with free paths from each goal orientation higher-order factor to each latent endogenous variable. Standardized regression coefficients (γ) can be seen in Table 5.

As expected (see Hypothesis 3), *self-efficacy* was positively predicted by learning goal orientation and negatively predicted by performance avoidance goal orientation for teacher trainees and in-service teachers. Additionally, we also found performance approach goal orientation to be a positive predictor of self-efficacy in both groups.

The *perception of help-seeking as beneficial* could significantly be predicted by learning goal orientation, which was in line with Hypothesis 4 and previous findings (Butler, 2007; Dickhäuser et al., 2007). As assumed in Hypothesis 5, *perception of help-seeking as threatening* was significantly predicted by performance avoidance goal orientation in both groups. For in-service teachers, we additionally found learning goal orientation to be a negative predictor of the perceived

Table 5
Parameter estimates for the higher-order structural equation model.

Goal Orientation	Self-efficacy γ	Perceived benefits of help-seeking γ	Perceived threat of help-seeking γ
Teacher trainees			
Learning GO	.21*	.47*	−.07
Performance approach GO	.53*	−.10	−.35
Performance avoidance GO	−.64*	.07	.79*
Work avoidance GO	−.07	.00	.07
In-service teachers			
Learning GO	.35*	.43*	−.27*
Performance approach GO	.55*	−.06	.10
Performance avoidance GO	−.61*	−.21	.56*
Work avoidance GO	−.11	.10	.02

Note. GO = goal orientation. γ = standardized regression coefficients between latent variables.
*$p < .05$.

threat of help-seeking, which was not assumed, but is in line with the results that Butler (2007) found for Israeli teachers.

3.3.2. Goal orientation facets

Two structural equation models were conducted for each group in order to test if competence- and addressee-specific facets of learning and performance avoidance goal orientation were differentially associated with perceived benefits and perceived threat of help-seeking, respectively.[6] The first model tested whether learning goal competence facets differentially predicted the perception of help-seeking as beneficial. In a second model, performance avoidance goal addressee facets were used to predict the perception of help-seeking as threatening.

We assumed that the *perception of help-seeking as beneficial* would primarily depend upon the pedagogical facet and the pedagogical-content facet of learning goal orientation (see Hypothesis 6). Indeed, the results supported this assumption. Perception of help-seeking as beneficial was predicted by pedagogical learning goal orientation ($\gamma = .21$, $p < .05$ for teacher trainees; $\gamma = .25$, $p < .05$ for in-service teachers) and pedagogical-content learning goal orientation ($\gamma = .31$, $p < .05$ for teacher trainees; $\gamma = .20$, $p < .05$ for in-service teachers). Content learning goal orientation was not a significant predictor in both groups, as expected.

According to Hypothesis 7, the *perception of help-seeking as threatening* should mainly be associated with the performance avoidance facet toward fellow teacher trainees (in the case of teacher trainees) and colleagues (in the case of in-service teachers). Results for teacher trainees indicated that perceived threat of help-seeking could be positively predicted by performance avoidance goal orientation toward fellow teacher trainees ($\gamma = .26$, $p < .05$), as expected. Additionally, we also found instructor-addressed performance avoidance goal orientation to be an equally important predictor ($\gamma = .29$, $p < .05$). Performance avoidance goal orientations directed to other addressees were not a significant predictor.

For in-service teachers, perception of help-seeking as threatening was significantly predicted by performance avoidance goal orientation directed to colleagues ($\gamma = .45$, $p < .05$). Contrary to our expectations, we additionally found self-directed performance avoidance goal orientation to be a low, but nonetheless, significant predictor ($\gamma = .14$, $p < .05$). No other performance avoidance addressee facet was a significant predictor.

4. Discussion

The goal orientation approach provides a new and fruitful framework for the analysis of teacher motivation (Butler, 2007). This article offers a theoretical and conceptual extension of this new perspective by taking into consideration three domains of knowledge and competence (pedagogical knowledge, content knowledge, pedagogical-content knowledge) for which teachers may strive to enhance themselves professionally, as well as four different addressee groups (principal/instructor, colleagues/fellow teacher trainees, students, self) to which teachers may seek to prove high competence or hide a lack of competence. To determine the usefulness of this extended framework, a new questionnaire was developed which distinguishes between three competence facets of learning goal orientation and four addressee facets of performance approach and performance avoidance goal orientation.

Despite the higher number of scales, an economic but reliable measure was obtained. In line with Hypothesis 1 the postulated structure of goal orientations was confirmed, supporting the validity of the theoretical extension and the questionnaire. In comparison to previous measures of goal orientations for teaching, fit indices were better than those reported by Butler (2007) and similar to those reported by Dickhäuser et al. (2007). The specified model was superior to five alternative models, and measurement invariance tests verified that the scale has the same factor structure and meaning across teacher trainees and in-service teachers. Supporting Hypothesis 2, these findings suggest the theoretically extended framework to be equally suitable for both in-service teachers and teacher trainees, and thus may be used with both populations.

In line with the idea that goal orientations for teaching represent an important factor for teachers' self-regulated learning and professional development, higher-order factors of goal orientation could be associated with self-efficacy for teaching and perceptions of help-seeking. Consistent with Hypotheses 3 and 4, learning goal orientation proved to be a positive predictor of self-efficacy for teaching and the

[6] To be able to analyze differential predictivity of lower-order factors, the hypothesized model had to be adjusted. In the first model, the higher-order learning goal factor was omitted from the hypothesized model, and learning goal competence facets were allowed to directly predict the perception of help-seeking as beneficial. In the second model, the higher-order performance avoidance goal factor was omitted from the hypothesized model, and performance avoidance goal addressee facets were allowed to directly predict the perception of help-seeking as threatening.

perceived benefits of help-seeking. Moreover, self-efficacy for teaching was positively predicted by performance approach goal orientation. In contrast, performance avoidance goal orientation was a negative predictor of self-efficacy and a positive predictor of perceived threat of help-seeking, verifying Hypotheses 3 and 5. All results are in line with previous studies (Butler, 2007; Dickhäuser et al., 2007; Midgley et al., 1998; Skaalvik, 1997) and provide further support for the convergent and divergent validity of the new measure.

Additionally, differential predictivity of learning goal competence facets to perceived benefits of help-seeking (see Hypothesis 6) and performance avoidance goal addressee facets to perceived threat of help-seeking (see Hypothesis 7) indicate that it is fruitful to consider these facets for the description and examination of teachers' goal orientations. Although the extended goal orientation approach is equally suitable for teacher trainees and in-service teachers, slightly divergent association patterns could be found. For example, in-service teachers' perceived threat of help-seeking could mainly be predicted by performance avoidance goal orientation addressed to colleagues, whereas in teacher trainees', performance avoidance goal orientation addressed to fellow teacher trainees and to instructors proved to be of similar importance. Although not explicitly assumed, this result is not surprising considering the German educational system. Instructors in Germany are formally established contact persons for any kind of teaching problems of teacher trainees. Despite this supporting function, which makes them an important addressee in help-seeking situations, they are also obliged to assess the performance of teacher trainees. In-service teachers in Germany are civil servants and they only marginally depend on the assessment of their principal. In contrast, instructors' ratings of teacher trainees' performance determines the passing and the grade at the end of the pre-service teacher training. Thus, revealing a lack of competencies could have a negative effect on a teacher trainee's probability of graduating. Given this rather ambiguous role of instructors, teacher trainees' performance avoidance goal orientation toward the instructor is not surprisingly associated with the perception of help-seeking as threatening.

Apart from the profound difference presented in the fact that teacher trainees are still in training, including the persistent pressure of assessment and the difficult status as a student and teacher alike, teacher trainees are in a situation where they have to give lessons for the first time in their lives, although they widely lack adequate teaching routines and have limited knowledge of instructional strategies (Borko & Putnam, 1996). Keeping these differences between teacher trainees and in-service teachers in mind, differential association patterns and differential relevance of goal orientations for various outcome variables become evident. It will be a key challenge for future research to explore the differential role of goal orientations during pre-service teacher training and teacher vocation.

4.1. Limitations

Despite the verification of the proposed model and hypotheses, there are still some limitations of the present study which remain to be addressed in future research. First, all scales used in the present study were based on self-reports. To be able to comprehensively assess the importance of goal orientations and their facets for different vocation-related outcomes, it will be necessary to include measures of behavior and achievement other than self-report in future research (see Fasching, Dresel, Dickhäuser, & Nitsche, in press; for first findings on this issue in teacher trainees). It will also be an interesting question to explore as to what extent teachers' goal orientations and their facets contribute to observable teaching behavior, and finally, to their students' outcomes and performances (for first findings on this issue, see Butler & Shibaz, 2008). In addition to the question regarding consequences to teaching and students, the question remains as to how teachers' goal orientations develop and if there are specific characteristics of school environments that facilitate or impede the preference for certain goals. Research on classroom goal structure has consistently found that students' goal orientations are influenced by the degree to which teachers emphasize that school is about learning or achievement (see Meece, Anderman, & Anderman, 2006). Similarly, one may assume that the school context may comprise certain characteristics that influence teachers' goal orientations, as well. Future research will be needed to examine this important issue. Beyond that, participation in the study was voluntary and, thus, the sample of the current study may be biased. Given that the completion of a questionnaire regarding self-established goals may be seen as self-revelation or time-consuming, it may potentially be that teachers with particularly high performance avoidance goal orientation or high work avoidance goal orientation are underrepresented in the current sample. Furthermore, although we think that we have contributed to the measurement of goal orientations for teaching, this process surely hasn't reached its final level. Research on goal orientations in students suggested some more goal orientations, such as extrinsic goal orientation, social goal orientation, or mastery-avoidance goal orientation (see Kaplan & Maehr, 2007), which may be useful for the analysis of teacher motivation, as well.

4.2. Conclusions and prospects

We found learning goal competence facets and performance avoidance goal addressee facets to be differentially predictive for perceptions of help-seeking, indicating that goal orientations, and especially particular facets of goal orientations, may substantially determine self-regulated learning and the development of competence in in-service teachers and teacher trainees. However, this result is just a first hint at the value of the postulated facets of learning and performance goal orientations. Future research will be needed to examine additional gains of these distinctions for the description and prediction of teachers' perceptions and behavior. We believe that the different competence facets within learning goal orientation will enable researchers to further examine what kind of teachers are more dedicated to a certain competence domain, and what this implies for their own professional development or the applied techniques in teaching. For example, teachers striving to extend their pedagogical competence may engage more frequently or

more intensely in actions and opportunities that enhance pedagogical competence, such as engaging in special teacher communities, participating in certain training courses, or discussing pedagogical issues with colleagues at school. Such a striving may also have an effect on the preparation and realization of lessons. We would expect teachers, driven by the desire to enhance their pedagogical competencies, to pay more attention to pedagogical aspects of their teaching and perhaps use more adaptive pedagogical methods. In contrast, teachers with a strong desire to extend their subject matter content knowledge may potentially realize a more interesting lesson with more background information and a higher valuation of understanding and deep processing, whereby pedagogical concepts are not necessarily of central concern.

Similarly, by specifying different addressee facets of performance goal orientations, it becomes possible to analyze more accurately how the pursuit of a certain performance goal effects the perception of and the interaction with a particular addressee group in the complex social context of the teaching profession. As performance approach or performance avoidance goal orientations addressed to colleagues might be associated with a specific pattern of perceptions, beliefs, behavior, or attitudes toward colleagues (as indicated by the differential associations with perceived threat of help-seeking in the present study), student-addressed performance goal orientations may easily result in a beneficial or detrimental pattern of attitudes toward students or to teaching practices. To be able to address such profound questions, a differentiated assessment of addressee-specific performance goal orientations is necessary. None of the previous measures for teachers' goal orientations would have allowed for such an in-depth analysis. Although our extension explicitly refers to teachers, we believe that the idea of learning goal competence facets and performance goal addressee facets may be equally interesting for other populations. In students, for example, research has indicated that learning goals are more subject-specific than are performance goals (Bong, 2001, 2004; Sparfeld et al., 2007), suggesting that it may be useful to distinguish between specific academic domains within learning goal orientation in students, as well. For performance approach and avoidance goal orientation, Ziegler et al. (2008) have already demonstrated the utility of different addressee groups within performance approach and avoidance goal orientation for the description and prediction of learning processes in students.

Although goal orientation facets may be helpful in providing a better understanding of the reasons underlying certain actions and perceptions of teachers, we believe it is not necessary to always include all goal orientation facets in the analyses. The choice of observation level concerning goal orientations should be selected with regard to the particular research question. If the focus of research lies on competence- or addressee-specific associations, goal orientation facets should be examined. In contrast, if the focus of research does not contain any competence- or addressee-specificity, the usage of higher-order goal orientation factors is to be preferred. The new instrument allows for an analysis at both levels.

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