

# University Instructors' Achievement Goals for Teaching

Martin Daumiller  
University of Augsburg

Oliver Dickhäuser  
University of Mannheim

Markus Dresel  
University of Augsburg

Achievement goals of university instructors for teaching were examined. We investigated the structure of these goals, the stability of this structure across different groups of instructors, and the relations of these goals to teaching-related outcomes. Achievement goals, positive affect, attitudes towards help, and self-reported teaching quality were assessed in a sample of 1,066 German university instructors from three different status groups (221 full professors, 370 postdoc staff members, 427 staff members without a PhD). The results confirmed that the well-established mastery, performance approach, and performance avoidance goals are likewise valid for university instructors, and that an appearance and a normative component of performance goals can be distinguished. Learning avoidance goals could be distinguished from learning approach goals and task goals could be separated from learning and performance goals. Also, work avoidance and relational goals were distinct from all previous goals. A model representing all differentiations adequately fitted the data. The goal structure was found to be completely invariant across different status groups of instructors—however, groups differed by mean levels of goals. Structural equation modeling pointed to the relevance of the goals: Theoretically sensible relationships with positive affect, attitudes towards help, and teaching quality affirmed the predictive validity of each goal class. Again, these relations were identical for all groups of instructors, highlighting the importance of the addressed goals independent of instructor status. Taken together, this sheds light on the structure of university instructors' achievement goals, and emphasizes the importance of this concept for analyzing instruction and learning in higher education.

## ***Educational Impact and Implications Statement***

Analyzing university instructors' achievement goals, this study helps to understand the (yet under-investigated) motivations of university instructors—a population that has a key function in society by fostering student learning. The findings demonstrate the importance of university instructors' achievement goals for their affect, cognition, and behavior in teaching. The results allow us to deduce first practical implications as to which goals should be enhanced (or reduced), e.g., in professional development courses. Also, the findings help to clarify central questions (which goals can be distinguished and which of these distinctions matter?) in an important motivational theory (achievement goal theory), so that it can be better applied to understand and modify individuals' actions.

*Keywords:* achievement goals, goal orientation, university, teaching, motivation

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Motivation is important for teaching at universities: Higher levels of instructors' motivation are associated with better teaching quality and teaching results, as

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Martin Daumiller, Dept. of Psychology, University of Augsburg; Oliver Dickhäuser, School of Social Sciences, University of Mannheim; Markus Dresel, Dept. of Psychology, University of Augsburg. The research reported in this article was supported by German Research Foundation Grant DI 929/5-1 to Oliver Dickhäuser and Grant DR 454/8-1 to Markus Dresel.

Correspondence concerning this article should be addressed to Martin Daumiller, Department of Psychology, University of Augsburg, Universitätsstr. 10, 86159 Augsburg, Germany. [Martin.Daumiller@phil.uni-augsburg.de](mailto:Martin.Daumiller@phil.uni-augsburg.de).

well as with a more frequent use of teaching development opportunities (for first findings see Morris & Usher, 2011; Young & Kline, 1996). However, few studies have investigated the motivational forces of university instructors (Dörnyei & Ushioda, 2013)—we know much more about the motivation of teachers in primary and secondary schools (see Richardson, Karabenick, & Watt, 2014, for an overview). Yet, due to systemic differences between universities and schools, university instructors' motivation may be differently organized than school teachers' motivation (cf. Kane, Sandretto, & Heath, 2002). In addition, the few studies

that have investigated university instructors' motivation only addressed the question of "how much" university instructors are motivated. By contrast, from current educational psychological perspectives, the question of the quality (i.e., "which kind") of motivation is of primary relevance (Pintrich, 2000a).

Drawing on the *quality* of motivation, achievement goal theory (AGT) can be considered a prolific concept of educational psychological motivation research in recent decades (Elliot, 2005; Maehr & Zusho, 2009). *Achievement goals* are cognitive representations of end states in achievement-related situations that the individual is committed to either approach or avoid (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). Frequently, an individual's desired level of competence, or undesired level of incompetence, lies at the heart of goal striving in achievement situations (Elliot, 2005; Hulleman et al., 2010). Preferences for different achievement goals have different affective, cognitive, and behavioral consequences (Hulleman et al., 2010; Payne, Youngcourt, & Beaubien, 2007).

While researchers agree upon the importance of achievement goals, there is debate concerning the general structure of achievement goals—i.e., how many goals can be distinguished and which of these distinctions are sensible. Also, in contrast to research on students, the structure of achievement goals has rarely been examined for the teaching profession. The present research investigates the achievement goals of a yet understudied population, namely university instructors. We analyze the structure of their goals, the generalizability of this structure across different status groups of instructors, and the predictive power of goals for instructors' affect, cognition, and behavior. In doing so, this study aims to (a) clarify fundamental questions about the structure of achievement goals, and to (b) understand the importance of achievement goals for instructors in the context of tertiary education. To this end, we first illustrate which issues on the structure of achievement goals are still unclear, and point out how AGT might be a suitable framework for understanding university instructors' motivation, affect, cognition, and behavior.

### Structure of Achievement Goals

Achievement goal theorists originally distinguished two types of goals (e.g., Dweck & Leggett, 1988; see Figure 1): *mastery goals* (develop competence; also called task orientation, learning, mastery-challenge goals) and *performance goals* (demonstrate competence; also called ego orientation, relative ability, self-

enhancement goals). Individuals pursuing mastery goals were characterized as primarily focused on the learning process, improvement, and skill development, whereas individuals pursuing performance goals were regarded as primarily ego-focused, outcome oriented, and interested in the evaluation of their performance relative to others. Later, in addition to these two qualities of goals, researchers postulated an orthogonal valence dimension, describing whether individuals aim to approach or avoid the outcomes corresponding to these two different qualities. This led to the assumption of four goal types: mastery approach, mastery avoidance, performance approach, and performance avoidance goals (Elliot & McGregor, 2001). However, there is disagreement regarding the nature of these goal classes and the existence and importance of further goal classes (Brophy, 2005; Elliot, 2005; Grant & Dweck, 2003; Hulleman et al., 2010), as we will outline in the next paragraphs.

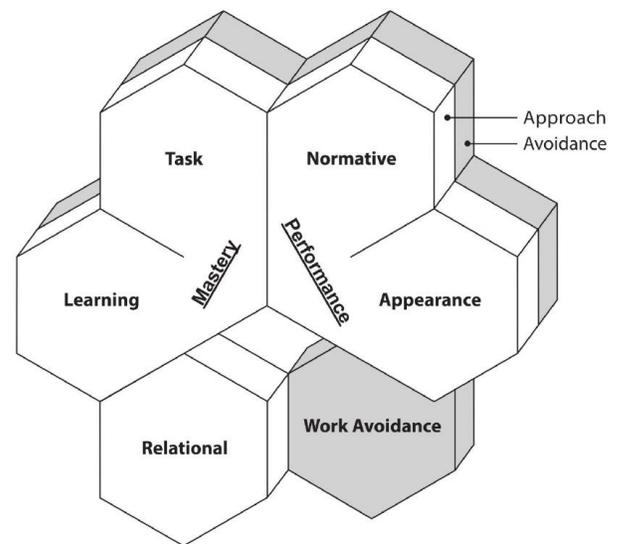


Figure 1. Proposed structure of university instructors' achievement goals.

### Performance Goals

While the distinction of an approach and an avoidance component of performance goals is widely accepted, there is disagreement on the definition of performance itself (Hulleman et al., 2010). Two basic defining components have been identified (Elliot, 1999, 2005; Lee & Bong, 2016; Urdan & Mestas, 2006), namely an *appearance* component and a *normative* component. Within the appearance component, performance is defined by demonstration and affirmation of competence to an audience (e.g., wanting others to think one is competent or not wanting them to think that

one is incompetent), while within the *normative* component, performance is defined based on normative social comparisons (e.g., wanting to be more competent than others or not wanting to be less competent than others). The appearance component and the normative component are empirically distinct and related differently to educational outcomes (Hackel, Jones, Caronneau, & Mueller, 2016; Hulleman et al., 2010; Senko & Dawson, 2017). However, to date, both components have only been investigated with regard to performance approach goals.

### Mastery Goals

The assumptions surrounding the core elements of mastery goals also differ between achievement goal theorists. For instance, Barron and Harackiewicz (2001) regarded mastery goals as striving to master the task itself (task standard), whereas Grant and Dweck (2003) characterized them as an active striving towards development and growth of competence (intrapersonal standard). These two different views have been made explicit by Elliot, Murayama, and Pekrun (2011). In addition to the assumption of social standards, they postulated task and intrapersonal evaluative standards, and two valence dimensions (approach vs. avoidance). In doing so, they bifurcated mastery based goals according to whether the standard for evaluating competence lies in the task alone (named *task goals* throughout this manuscript) or in one's intrapersonal development (named *learning goals* throughout this manuscript). Elliot et al. (2011) reported support for this separation of mastery goals. In addition, studies with students found different associations of task and learning goals with affect, cognition, and behavior—specifically, task goals were associated with more positive effects (than learning goals) with regard to other motivational variables (e.g., self-efficacy, task value) and learning strategies. These differences were stronger for the approach components than for the avoidance components (Diseth, 2015; Elliot et al., 2011).

In particular, learning avoidance goals—i.e., striving to avoid incomplete knowledge or intrapersonal incompetence—are controversially discussed. It is unclear to what extent learning avoidance goals naturally occur in achievement situations (Cury, Elliot, Da Fonseca, & Moller, 2006; Hulleman et al., 2010). There are some signs that this class of goals may be important for adults—who strive higher to keep the status quo (de Lange, Van Yperen, Van der Heijden, & Bal, 2010; Ebner, Freund, & Baltes, 2006). Thus, opposed to younger

students, this class of goals may be more prevalent for older individuals (like university instructors).

It should be noted that although there are some indications for the factorial separability of task and learning goals (e.g., Diseth, 2015; Elliot et al., 2011; Wu, 2012), the usefulness of this distinction is still critically discussed (e.g., David, 2014; Elliot et al., 2011). Also, items describing task based goals have previously been used in the operationalization of both learning and performance based goals (Hulleman et al., 2010)—this may be one reason for the puzzling findings on the effects of performance goals. For teachers, there are first indications that task and learning based goals show distinct associations with instructional behavior, a difference that was previously masked due to the combination of both goals under the term of “mastery goals” (Mascret, Elliot, & Cury, 2015). Thus it needs to be investigated if task goals can be separated from learning and performance goals. Specifically, task goals are presumably most closely related to normative aspects of performance, as excelling at a task can be a means to do better than others. Following this idea, task goals should therefore be tested with regard to their separability, not only from learning but also from performance normative goals.

### Additional Relevant Goals

In the literature on achievement goals, particularly school teachers' achievement goals, two further goal classes unrelated to the individual definition of competence have been proposed, namely *work avoidance goals* (striving to get through the day with little effort), and *relational goals* (striving to create close and caring relationships with students). These two goal classes are often neglected (Lee & Bong, 2016), but may be important since they can have strong effects on the affect, cognition, and behavior of instructors, as well as student learning (Ainley, 1993).

In multi-goal environments that encompass many tasks and duties, work avoidance goals are prevalent and considered important in order to explain potentially maladaptive motivational dynamics (e.g., leading to reduced engagement or well-being; Nicholls, Patashnick, & Nolen, 1985, King & McInerney, 2014). While work avoidance in students can often be traced back to boredom or indifference (Jarvis & Seifert, 2002), for university instructors, such goals may even be required to some extent, since setting personal priorities is necessary in order to cope with the multitude of different tasks and responsibilities they face at work.

Achievement contexts are usually also social contexts, in which goals focused on relationships with other people guide individual motivation. Particularly for teachers, who are responsible for the learning of others, there is also a strong, job inherent, obligation to care about all individual students and the relationships shared with them (Butler, 2012). Teachers' relational goals additionally differ from the corresponding goals of students (cf. the concept of social goals; Wentzel, 1994), since both are directed at different addressees, possibly resulting in deviations in prevalence and effects: While students' relational goals are focused on peers, relational goals in teaching contexts are focused on students (being on a different level of hierarchy). Contrary to teachers, students may also voluntarily choose with whom they want to be related within class and whether they want to pursue strong relational goals in class at all.

### University Instructors' Achievement Goals

While AGT in educational settings has primarily been studied with respect to student populations (Senko, Hulleman, & Harackiewicz, 2011), it has recently been expanded to school teachers (Butler, 2007; Dresel, Fasching, Steuer, Nitsche, & Dickhäuser, 2013; Fasching, Dresel, Dickhäuser, & Nitsche, 2010; Retelsdorf & Günther, 2011). Universities, just like schools, are achievement arenas not only for students but also for teachers—they require instructors to perform under observation and to constantly learn and improve.

However, several important differences between teaching at schools and teaching at universities exist. University instructors often have extra tasks such as research or administration, more freedom concerning content and organization of their courses, and usually less formal teaching qualifications than school teachers (Handke, 2014). Therefore, university instructors can be considered a unique population requiring specific investigation. Addressing the achievement goals of this population appears to be especially advantageous for predicting instructors' affect, cognition, and behavior at work because there are high levels of autonomy and self-regulation in teaching, which potentially makes an instructor's individual motivation an important determinant.

Daumiller, Figas, and Dresel (2015) conducted a qualitative study by interviewing university instructors about the personal goals they pursue while teaching. Instructors' answers were categorized into a system that

incorporated different achievement goal classes, student-related goals, and a no-goals-category. Ninety-five percent of the answers fell into the goal categories. Also, instructors considered achievement goals central to their teaching-related aims and reported pursuing multiple goals, which underlines the idea that AGT is as a promising approach for describing the motivational goals of university instructors.

Daumiller, Grassinger, Dickhäuser, and Dresel (2016) asked 251 university instructors to answer a questionnaire measuring achievement goals, self-efficacy, and enthusiasm in 392 courses. In addition, teaching quality was assessed using reports from over 9,000 students attending these courses. The results indicated distinct relationships between instructors' achievement goals and other aspects of their motivation as well as students' ratings of teaching quality. Therefore, it appears that AGT is also well suited to predict potential consequences.

As illustrated, in AGT, there are several debates about the structure of goals, and particularly sparse results in this regard for school teachers. Also, it can be assumed that the structure of achievement goals may be distinct for university instructors because they work in achievement settings that encompass a wide array of learning and performance aspects. For instance, concerning the defining elements of performance goals for different populations, for students, normative aspects (being better than others) of performance goals may be of particular importance, while for school teachers, appearing competent in front of students may be rather decisive; however, for university instructors, both aspects may constitute equal and distinct aspects of performance goals (Daumiller et al., 2016). Addressing these structural issues is important when investigating achievement goals in a new population and crucial in order to advance AGT. Given this importance, in the next section we elaborate on existing findings concerning the structure of the achievement goals of university instructors.

Daumiller et al. (2016) found that splitting university instructors' *performance goals* into *approach* and *avoidance* components worked just as well as splitting them into *appearance* and *normative* components. All components yielded distinct relationships with other motivational variables and performance outcomes. Therefore, it seems reasonable to assume that systematically combining approach and avoidance dimensions with appearance and normative components advances the clarification of their characteristics and functions. Preliminary evidence in support of the importance of *learning avoidance goals* for university instructors was

found in the interview study by Daumiller et al. (2015), where some university instructors spontaneously articulated learning avoidance goals as important motivational forces (e.g., not wanting to miss out on opportunities that could serve to enhance their teaching quality). Therefore, we will test whether learning avoidance goals indeed constitute a distinct and meaningful class of university instructors' goals. There is also first evidence that *work avoidance* and *relational goals* may be important for university instructors: Daumiller et al. (2016) presented indications that work avoidance goals are frequently set by university instructors and negatively related to student ratings of teaching quality, while no effects were found for relational goals. However, when asked about their personal goals, university instructors frequently articulated goals referring to relationships with students (Daumiller et al., 2015). Therefore, we have reason to believe that these two goal classes may be relevant for university instructors.

Given these considerations and existing findings, we assume that AGT might be a suitable framework for describing and analyzing university instructors' motivation, while different achievement goal classes may be distinguished. By crossing the valence dimension (approach, avoidance) with the defining components of

mastery goals (task, learning) and performance goals (appearance, normative standards), and including two further goal classes (work avoidance, relational), ten different goal classes are postulated. We propose and test a model of university instructors' achievement goals that summarizes and distinguishes these goal classes (Figure 1). We refer to this model as *hexagon model* since it is characterized by *six different types of goal content* (learning, task, normative, and appearance, as well as the two additional work avoidance and relational aspects). This model also illustrates the commonalities between task goals and learning goals (both are mastery goals), and between normative and appearance goals (both are performance goals). For each of the two forms of mastery goals and performance goals, an approach and an avoidance component can be postulated (illustrated with the two different layers of the model). These assumptions result in  $4 \times 2 + 2 = 10$  goal classes. Please note that the model also reflects that work avoidance goals are, by definition, avoidance-based goals, while relational goals are conceptualized as approach-based goals. Definitions and references for the conceptualizations of all ten goal classes are presented in Table 1.

Table 1  
*Overview of Proposed Goal Classes, their Working Definition, Important References, Sample Items, and Internal Consistencies*

Goal class	Definition: Striving to ...	Important references	Sample items (Stem: In my current teaching activities, ...)	$\omega$
Task approach	... do well on a task, based on its own standard.	Elliot et al. (2011); Barron & Harackiewicz (2001)	... I want to fulfil the different requirements very well.	.89
Task avoidance	... avoid doing poor on a task, based on its own standard.	Elliot et al. (2011); Elliot & Murayama (2008)	... I want to avoid fulfilling the different requirements poorly.	.88
Learning approach	... develop and grow own competencies.	Elliot (1999); Elliot & McGregor (2001); Grant & Dweck (2003)	... I want to constantly improve my competences.	.90
Learning avoidance	... avoid losing own competencies or not developing them.	Baranik, Barron, & Finney (2007); Cury et al. (2006)	... it is important to me to avoid having my competencies not develop further.	.85
Appearance approach	... appear competent to others.	Elliot & McGregor (2001); Grant & Dweck (2003)	... I want to be perceived as competent.	.87
Appearance avoidance	... avoid appearing incompetent to others.	Elliot & McGregor (2001); Grant & Dweck (2003)	... I want to avoid being perceived as incompetent.	.89
Normative approach	... be more competent than others.	Elliot (1999); Midgley et al. (2001); Pintrich (2000b)	... I want to be better than my colleagues.	.92
Normative avoidance	... avoid not being less competent than others.	Elliot (1999); Midgley et al. (2001); Pintrich (2000b)	... I don't want to be worse than my colleagues.	.92
Work avoidance	... get through the day with little effort.	Meece, Blumenfeld, & Hoyle (1988); Nicholls, Patashnick, & Nolen (1985)	... I want to have as little to do as possible.	.95
Relational	... create close and caring relationships with students.	Kaplan and Maehr (2007); Urdan and Maehr (1995)	... it is important to me to achieve a personal connection with students.	.90

### **Achievement Goals of Different Groups of University Instructors**

University instructors (i.e., all people who teach courses at universities) are not a uniform group. They differ, for example, by status group, formal qualification, or employment. In addition, not all instructors have the same teaching load. Contextual differences—which may also partly be grounded in the tertiary education system of the country the instructor is working in—may ultimately result in differences in instructors' achievement goals. For instance, it seems reasonable that performance goals (especially concerning the appearance component) are of less importance for those instructors who are employed permanently (e.g., full professors), as their employment does not depend on being (perceived as) good or not bad in teaching. In addition, work avoidance goals concerning teaching may be most important for those instructors who have just started their academic career and are less experienced in handling multiple obligations. Given this reasoning, investigating the mean levels of achievement goals across different groups of instructors provides a unique opportunity for testing theoretically reasonable hypotheses on the achievement goal approach on university instructors. At the same time, analyzing the goal structure across groups additionally allows to test whether the structure of achievement goals differs with the status group of the instructors. A strong case for the suggested model of achievement goals is made if the structure of goals would *not* differ by status group (i.e., achievement goals are structured equally, independent of status group) but only differ, at most, on the mean levels of the various goals classes (i.e., different goals are of different importance for different groups of instructors).

### **Relationships between Instructors' Achievement Goals and Experiences, and Teaching Quality**

Research on students has clearly documented that different achievement goals are differently associated with affect, cognition, and behavior (Hulleman et al., 2010; Payne et al., 2007). Recently, considerable evidence has shown that this is also the case for school teachers (e.g., Butler, 2007; Fasching et al., 2010; Retelsdorf & Günther, 2011). Achievement goals were distinctly associated with school teachers' work-related experiences (e.g., positive affect), attitudes (e.g., towards help), and outcomes (e.g., teaching quality). Consequently, it can be expected that, also for university instructors, the pursuit of different achievement

goals is associated with different affect, cognition, and behavior concerning teaching.

Regarding the associations between achievement goals and affective outcomes, there has been plenty of research on students (see Pekrun, Elliot, & Maier, 2009 for an overview). In a meta-analysis, Huang (2011) presented evidence that mastery approach goals are strongly related to positive emotions, while performance approach goals are moderately related to positive emotions, and performance avoidance goals are negatively related. Regarding mastery goals, a study by Brondino, Raccanello, and Pasini (2014) indicated that especially task approach goals are associated with positive emotions. Also work avoidance goals have been shown to be negatively associated with learning enjoyment (Ee, Wang, Koh, Tan, & Liu, 2009). In combining the results of students' experiences with similar (first) results for the emotions of school teachers, including positive effects for relational goals (Wang, Hall, Goetz, & Frenzel, 2016), we expect that achievement goals differentially predict university instructors' emotions while teaching, specifically their experience of positive affect (Watson & Tellegen, 1985).

Seeking help is an integral aspect of self-regulated learning that is important for school teachers and university instructors who often face situations where, for instance, consulting with colleagues is essential for solving problems and realizing high teaching quality. It has been documented that achievement goals are related to qualitatively different attitudes towards help seeking: School teachers' mastery approach goals are associated with perceiving help seeking as more beneficial and less threatening (e.g., Butler, 2007; Dickhäuser, Butler, & Tönjes, 2007), while their performance avoidance and work avoidance goals are related to perceiving help seeking as a threat (Dickhäuser, et al., 2007; Skaalvik & Skaalvik, 2005; see also Karabenick, 2004, and Linnenbrink, 2005, for similar findings in students).

In general, research on achievement goals underscores that mastery goals are positively, and performance avoidance goals are mostly negatively, related to performance (Senko et al., 2011). This also seems to be the case in the teaching profession: Achievement goals have been shown to be associated with school teachers' acquisitions of teaching competences and instructional practices (Butler & Shibaz, 2008; Dresel et al., 2013; Retelsdorf, Butler, Strebblow, & Schiefele, 2010), and attitudes towards further training and professional learning (Butler, 2007; Nitsche, Dickhäuser, Fasching, & Dresel, 2013; Runhaar, Sanders, & Yang,

2010). Teachers with strong mastery goals reported using more instructional strategies that stimulate students cognitively, while performance oriented teachers emphasized competition and achievement (Butler & Shibaz, 2008). Yet, there are first indications that especially task approach goals are related to school teachers' instructional behaviors, and that they might be more relevant than learning goals (Mascret et al., 2015). In addition, relational goals are considered to lie "at the heart of effective teaching" (Butler, 2012, p. 726). For university instructors, Daumiller et al. (2016) found positive associations between instructors' learning goals and students' ratings of teaching quality, and similar negative associations for performance avoidance and work avoidance goals.

The relations between instructors' achievement goals and the above-mentioned affective, cognitive, and behavioral outcomes may serve as first assumptions with regard to what can be expected for university instructors. These relations may be postulated as independent of the status group of the instructors. Therefore, an analysis showing that these relations to outcomes do not differ in accord with the status of an instructor may point to the robustness of the achievement goal framework for different groups of instructors.

### Research Questions

The purpose of the present work is to elucidate fundamental questions about the structure of achievement goals and to clarify the importance of achievement goals for university instructors. As a result of integrating all presented considerations on the structure of achievement goals, we propose and test a model of university instructors' achievement goals.

Specifically, the present study addresses four prevalent issues of AGT, namely (a) the nature of performance goals, (b) the separability of learning avoidance goals, (c) the added value of task goals, and (d) the benefits of including work avoidance and relational goals. We assume that the goal classes proposed in the model illustrated in Figure 1 can be distinguished from each other and are each differently related to outcome variables (i.e., affect, cognition, and behavior of university instructors in the form of positive affect, attitudes towards help, and teaching quality).

The main hypotheses guiding our research are as follows:

*Hypothesis 1:* The model postulating ten different goals is assumed to describe the structure of uni-

versity instructors' achievement goals and is therefore expected to show a good fit to the data. Specifically, the proposed distinction into the individual goal classes is expected to describe the data better than alternative models. The core structural postulates of this model are as follows:

- a) Appearance approach, appearance avoidance, normative approach, and normative avoidance goals can be distinguished from each other.
- b) Learning avoidance goals can be separated from learning approach goals.
- c) Task approach and task avoidance goals can be separated from each other, and from learning approach and learning avoidance goals, as well as from normative approach and normative avoidance goals.
- d) Work avoidance and relational goals can be separated from the other goal classes.

*Hypothesis 2:* We expect this structure to be independent across different status groups of instructors. Different status groups are only expected to differ in the mean levels of their goals, and not in goal structure. Specifically, we expect to find lower levels of performance goals (especially with regard to appearance aspects) for full professors. Also, we assume work avoidance to be more strongly pursued by staff members without a PhD.

*Hypothesis 3:* The different achievement goals are assumed to differentially predict instructors' affects, attitudes, and behaviors (self-reported teaching quality). This relation is again assumed to be independent of instructor status groups.

Building on the aforementioned results for students and school teachers, we formulated specific expectations for university instructors. Regarding positive affect, we specifically expected positive associations for mastery approach, relational goals, and performance approach goals, and negative associations for performance avoidance and work avoidance goals. We also assumed advantageous associations between mastery approach goals and both attitudes towards help seeking, and negative associations for performance avoidance and work avoidance goals with regard to perceiving help seeking as threatening. Lastly, with regard to teaching quality, we expected positive associations for mastery (especially for task goals, but possibly also for learning goals) and relational goals, and negative associations for work avoidance goals. Also, we anticipated

performance approach goals to be positively, and performance avoidance goals to be negatively, related to teaching quality. Unless otherwise noted, it was an open question as to whether the effects of mastery and performance goals (if they can be further distinguished as suggested in Hypothesis 1) are possibly different with respect to their distinctions into task and learning, as well as appearance and normative, aspects.

## Method

### Procedure and Sample

University instructors responded to an online questionnaire assessing their achievement goals as well as affective, cognitive, and behavioral outcome variables (experience of positive affect, attitudes towards help, and self-reported teaching quality) and relevant biographic information (including status group). The instructors received a small incentive after participating in the study (5€ voucher). We chose three typical fields (Physics, History, and Psychology) that represent a range of university study programs, identified all public universities in Germany where these fields were taught, and randomly selected instructors from each university who were subsequently contacted by e-mail.

The study was conducted in full accordance with the Ethical Guidelines of the German Association of Psychologists and the American Psychological Association. Anonymity was assured. We had no reason to assume that completing our survey would have any negative effects on the participants.

Altogether 1,066 university instructors (221 full professors, 370 postdoc staff members, 427 staff members instructors without a PhD; 567 males, 451 females; mean age: 37.4 years; Physics: 325, History: 297, Psychology: 396)<sup>1</sup> from 74 public German universities participated in the study. Comparing the descriptive composition (age, gender, and status group) of our sample with nationwide statistics (Statistisches Bundesamt, 2014) shows that our sample is representative of the three fields of interest.

The German higher education system differs from systems in other countries, such as the U.S. One key difference within the context of the present study is that in Germany, graduates deciding to pursue a doctoral degree usually have a master's degree already and frequently start their scientific career with a half-time position as an academic staff-member. Thus, they typically assist in research and take on teaching assignments (e.g., teach undergraduates), while fulfilling their PhD requirements. Consequently, in comparison

to other systems like in the U.S., these graduates are not usually considered (PhD) students but rather members of the academic staff. However, as a result of half-time employment, their teaching load is lower compared to postdoc staff members, who have a PhD, and often are employed full-time and participate in both research and teaching activities. As a second difference, most of these staff members are not employed permanently, as the German system offers only very few permanent, non-professorial positions. In contrast, full professors are usually permanently employed. Compared to the other two status groups, they also have the heaviest teaching loads (see Wosnitza, Helker, & Lohbeck, 2013 for a more detailed description of the academic staff situation at German universities).

### Measurements

**Achievement Goals.** We adapted the inventory from Daumiller et al. (2016) by extending it to include all supposed goal classes while narrowly focusing the items on the definitions of these goal classes. Table 1 gives an overview of the definitions, sample items, and internal consistencies for all goal classes. We asked the instructors to refer their answers exclusively to their teaching activities using the item stem, "In my current teaching activities, ...". Symmetrical wording was used between approach and avoidance goal classes (e.g., for task approach and task avoidance goals: "... I want to fulfill the different requirements very well" vs. "... I want to avoid fulfilling the different requirements poorly") in order to ensure that the only difference between the respective goal classes is due to their approach or avoidance character, respectively. There were four items per scale; all were answered on Likert type scales ranging from 1 (*do not agree at all*) to 8 (*agree completely*). All items can be found in the Appendix.

**Positive Affect.** We used an instrument developed by Keller, Goetz, Becker, Morger, and Hensley (2014) to measure university instructors' positive affects when teaching. Responding to three items (e.g., "I really enjoy teaching";  $\omega = .94$ ) the instructors utilized a Likert type scale ranging from 1 (*do not agree at all*) to 5 (*agree completely*).

**Attitudes Towards Help Seeking.** In order to assess instructors' attitudes towards help, we used two scales of an instrument published by Dickhäuser et al. (2007) and adapted them slightly to the university context. With four items each, we assessed perceptions of help seeking as threatening to the self (e.g., "Asking for help as an instructor only shows your weaknesses";

$\omega = .79$ ), and perceptions of help seeking as beneficial for learning (e.g., “Asking others for help helps me to become a better instructor”;  $\omega = .89$ ). Items were to be answered on Likert type scales ranging from 1 (*not true at all*) to 5 (*completely true*).

**Self-Reported Teaching Quality.** We assessed instructors’ teaching quality by asking the instructors for self-reported ratings regarding the nine subdimensions of the *SEEQ* (Students’ Evaluations of Educational Quality; Marsh, 1982), the instrument that has been used very widely to assess teaching quality in higher education contexts. The dimensions assessed are (a) student learning, (b) enthusiasm, (c) organisation, (d) group interaction, (e) individual rapport, (f) breadth, (g) examination, (h) assignments, and (i) an overall rating. Student ratings could have been an alternative approach to assessing instructors’ teaching quality (though also biased by an array of bias and unfairness variables). However, to assess teaching quality of as many instructors from different universities as in our sample, it was not feasible to include student ratings. Since instructors are experts in the field of teaching, it is plausible to assume that they can—to a substantial extent—validly assess their own teaching quality, therefore, in such situations self-reports are commonly used (Retelsdorf et al., 2010). We asked participants to refer to their courses as a whole when answering. We presented nine items, corresponding to the dimensions comprising the *SEEQ* subscale, and explanations of what they contain in brackets (e.g., “*Breadth* [Extent to which you teach taking different perspectives into consideration; e.g., inclusion of current scientific developments, consideration of different theoretical views and backgrounds—also if they differ from your own ways of thinking]”). On Likert type scales ranging from 1 (*very bad*) to 5 (*very good*), instructors were asked to indicate how well they rate themselves on each aspect of teaching quality ( $\omega = .88$ ).

### Missing Values

Missing data (< 0.9% for each item) was imputed using the expectation-maximization algorithm (Peugh & Enders, 2004).

### Analyses

**Confirmatory Factor Analyses.** In order to test the structural hypotheses, Confirmatory Factor Analyses (CFA) were conducted with Mplus (Muthén & Muthén, 2014) using the MLR estimator.  $\chi^2$  and SRMR were used as absolute fit indices, TLI as a relative fit index

that also adjusts for parsimony, and RMSEA and CFI as noncentrality-based indices. Due to the construction of the goal questionnaire, i.e., symmetrical formulation of items for the approach and the avoidance components (which leads to shared method variance due to symmetric wording), we a priori decided to model correlated errors between the corresponding items (Brown, 2015). Latent variables were standardized by setting their means to 0 and variances to 1. We compared more and less parsimonious models that subsume or disentangle achievement goals (e.g., for performance goals, we compared a model with a single factor against models with two factors—differing between performance approach and performance avoidance goals, or performance appearance and performance normative goals respectively—as well as a model with four factors). Taking the similarity of the different items that were used to assess the achievement goal classes into consideration, it should be noted that, due to presumably strong cross-loadings, a certain amount of model misspecification is automatically induced so that very good model fit indices seem unlikely (Marsh et al., 2009). Consequently, in such constellations lenient cut-off values should be used to assess satisfactory model fit (Fan & Sivo, 2007). Thus, we used  $CFI > .90$ ,  $TLI > .90$ ,  $RMSEA < .10$ , and  $SRMR < .08$  as cut-off values in the present work (cf. Schermelleh-Engel, Moosbrugger, & Müller, 2003).

**Measurement Invariance.** In order to test if the goal structure is independent across different groups of instructors, multi-group confirmatory factor analyses (MG-CFA) were conducted. We estimated models for the three status groups of instructors (full professors, postdoc staff members, staff members without a PhD). A step-up approach was used to estimate a series of hierarchical models by imposing restrictions between the measurement models for the three groups. The following models were compared (cf. Gregorich, 2007): (a) a model in which the item-factor clusters were restricted to be equivalent for all three groups (*configural invariance*), (b) a model in which the factor loadings were additionally restricted between the three groups (*metric invariance*), (c) a model in which the item intercepts were additionally restricted (*scalar invariance*), (d) a model in which the residual variances were additionally restricted (*strict invariance*), and (e) a model in which the correlations between the latent variables were additionally restricted (*complete invariance*). When a more restricted model does not describe the data worse than the previous, less restricted model, one can assume the corresponding form of invariance. Differences in model fit between subsequent models were evaluated

using  $-2\Delta LL$  rescaled difference in the model log-likelihood values (robust chi-square difference test), as well as the differences between CFI and RMSEA (using the commonly suggested cut-off values of  $\Delta CFI = .02$  and  $\Delta RMSEA = .015$ ; Chen, 2007).

**Mean Level Differences.** On the basis of the model with unrestricted means, the latent means for all goal classes were calculated for the three status groups. In order to allow for an easy interpretation, the means were  $z$ -standardized and 95%-confidence intervals were reported. Additionally, a multivariate analysis of variance with all achievement goals was performed.

**Structural Equation Modeling.** In order to test for associations between achievement goals and outcome variables, we estimated a structural model using latent constructs based on item parcels as indicators (this approach is preferable to using items as indicators since it reduces the amount of error in complex model estimations; Little, Rhemtulla, Gibson, & Schoemann, 2013). To be specific, using the item-to-construct method, two parcels were used for each construct (Little, Cunningham, & Shahar, 2002). We modeled paths from all achievement goals to all outcome variables. In addition, we modeled correlations between all achievement goals and residual correlations between all outcome

variables. We present fit indices and report standardized coefficients. Finally, to test whether the effects in this model are invariant for the three status groups, we conducted MGCFAs similar to those done before. We compared a model in which the regression paths between goals and outcome variables were allowed to vary between status groups with a model in which these paths were restricted between all groups (in both models, the measurement part was set to be identical for the three groups; complete invariance).

## Results

### Descriptive Results

Descriptive statistics (Table 2) revealed moderate to rather high means for the achievement goals (with the exception of work avoidance goals). This indicates that the goals constitute important aspects of university instructors' motivation, and that instructors frequently pursue multiple goals. For almost all goals, the entire theoretically possible range was attained and rather large variances were observed. This points to substantial inter-individual differences in the personal importance of different achievement goals.

Table 2

*Descriptive Statistics and Latent Correlations for Achievement Goals, Outcome Variables, and Biographical Variables*

	<i>M</i>	<i>SD</i>	Min	Max	Skew	1	2	3	4	5	6	7	8	9	10
Mastery goals															
[1] Task approach	7.15	0.97	1.00	8.00	-1.77										
[2] Task avoidance	6.76	1.33	1.25	8.00	-1.34	<b>.45</b>									
[3] Learning approach	6.79	1.17	1.00	8.00	-1.23	<b>.61</b>	<b>.32</b>								
[4] Learning avoidance	6.20	1.47	1.00	8.00	-0.78	<b>.49</b>	<b>.52</b>	<b>.85</b>							
Performance goals															
[5] Appearance approach	6.15	1.35	1.50	8.00	-0.81	<b>.44</b>	<b>.43</b>	<b>.26</b>	<b>.31</b>						
[6] Appearance avoidance	6.33	1.47	1.00	8.00	-1.04	<b>.31</b>	<b>.73</b>	<b>.14</b>	<b>.29</b>	<b>.81</b>					
[7] Normative approach	4.76	1.75	1.00	8.00	-0.31	<b>.32</b>	<b>.31</b>	<b>.18</b>	<b>.23</b>	<b>.68</b>	<b>.54</b>				
[8] Normative avoidance	5.56	1.76	1.00	8.00	-0.62	<b>.30</b>	<b>.59</b>	<b>.19</b>	<b>.32</b>	<b>.70</b>	<b>.80</b>	<b>.75</b>			
Further goals															
[9] Work avoidance	2.82	1.63	1.00	8.00	0.74	<b>-.48</b>	<b>-.08</b>	<b>-.37</b>	<b>-.25</b>	<b>-.01</b>	<b>.07</b>	<b>.01</b>	<b>.05</b>		
[10] Relational	5.18	1.66	1.00	8.00	-0.45	<b>.23</b>	<b>.20</b>	<b>.26</b>	<b>.23</b>	<b>.27</b>	<b>.22</b>	<b>.30</b>	<b>.26</b>	<b>-.10</b>	
Positive affect	6.62	1.38	1.00	8.00	-1.23	<b>.68</b>	<b>.21</b>	<b>.45</b>	<b>.34</b>	<b>.27</b>	<b>.11</b>	<b>.22</b>	<b>.11</b>	<b>-.46</b>	<b>.26</b>
Help seeking: useful	6.45	0.79	1.00	8.00	-0.98	<b>.46</b>	<b>.26</b>	<b>.49</b>	<b>.39</b>	<b>.16</b>	<b>.13</b>	<b>.08</b>	<b>.11</b>	<b>-.25</b>	<b>.20</b>
Help seeking: threat	2.48	1.28	1.00	8.00	0.94	<b>-.20</b>	<b>-.02</b>	<b>-.24</b>	<b>-.16</b>	<b>.18</b>	<b>.16</b>	<b>.15</b>	<b>.13</b>	<b>.28</b>	<b>.03</b>
Teaching quality	6.45	0.79	1.00	8.00	-1.07	<b>.65</b>	<b>.25</b>	<b>.39</b>	<b>.30</b>	<b>.34</b>	<b>.18</b>	<b>.25</b>	<b>.18</b>	<b>-.33</b>	<b>.27</b>
Age	37.44	10.55	23.00	77.00	0.95	<b>-.04</b>	<b>-.09</b>	<b>.15</b>	<b>.07</b>	<b>-.18</b>	<b>-.22</b>	<b>-.01</b>	<b>-.10</b>	<b>-.26</b>	<b>.11</b>
Gender (0=male; 1=female)	0.44	0.77	0.00	1.00	0.23	<b>.08</b>	<b>-.02</b>	<b>.13</b>	<b>.07</b>	<b>.03</b>	<b>.05</b>	<b>-.02</b>	<b>.06</b>	<b>-.09</b>	<b>.03</b>

*Note.* Significant coefficients ( $p < .05$ ) are in boldface. Latent correlations were estimated with a measurement model containing all variables ( $df = 1758$ ,  $\chi^2 = 4942.63$ , CFI = .92, TLI = .91, RMSEA = .04, SRMR = .05).

**Structure of University Instructors' Achievement Goals for Teaching**

Table 3 gives an overview of all estimated CFA models, including the range of loadings of the estimated factors and their correlations. The latent correlations between all achievement goal classes were presented in Table 2.

For performance goals (Hypothesis 1a), splitting the items into approach and avoidance, or appearance and normative, factors described the data better than not differentiating between them (i.e., one factor model); however, only an incorporation of both aspects (i.e., a four-factor model) resulted in an acceptable model fit. The resulting appearance approach, appearance avoidance, normative approach, and normative avoidance goal classes were moderately to highly correlated ( $\rho = .54-.81$ ) with relatively high correlations between appearance approach and appearance avoidance, as well as between appearance avoidance and normative avoidance goals.

For learning goals (Hypothesis 1b), an adequate fit was only realized when distinguishing between learning approach and learning avoidance goals. The fit of a single factor model was poor. Learning approach and learning avoidance goals were highly correlated ( $\rho = .85$ ).

Also for task goals (Hypothesis 1c), an adequate model fit was only realized when modelling them separately from learning and normative goals, and when additionally differing between approach and avoidance components. All other models did not sufficiently fit the data. Task approach and task avoidance goals were moderately correlated with learning approach and learning avoidance, as well as normative approach and normative avoidance goals ( $\rho = .30-.61$ ).

Altogether a model with all theoretically possible 10 goal classes (cf. Figure 1) fit the data well. We additionally confirmed the robustness of this model by conducting a three-fold cross-validation (Grimm, Mazza, & Davoudzadeh, 2016; details can be found in an electronic supplement). The included work avoidance goals and relational goals (cf. Hypothesis 1d) were moderately associated with the other goal classes ( $\rho = -.48-.30$ ). For work avoidance goals, this association was often negative.

The inspection of the factor loadings of all final models (i.e., those with an adequate fit), displayed in Table 3, showed that for all models the loadings clearly exceeded the cutoff-criterion of .40 determined by Peterson (2000), and are therefore considered to be satisfactory.

Table 3  
*Comparison of Hypothesized and Alternative Models*

Model	<i>df</i>	$\chi^2$	CFI	TLI	RMSEA	SRMR	Factor correlations	Factor loadings
Performance goals								
One factor model	96	3921.5	.74	.68	.19	.09		.59-.82
Approach-avoidance model	95	2555.7	.83	.78	.16	.08	.82	.55-.85
Appearance-normative model	95	2681.7	.83	.78	.16	.08	.76	.62-.86
Four factor model	90	653.2	.94	.93	.09	.06	.54-.81	.61-.92
Learning goals								
One factor model	16	612.0	.90	.82	.19	.06		.63-.87
Approach-avoidance model	15	383.8	.94	.90	.15	.06	.85	.72-.89
Task and learning goals								
One factor model	96	4385.8	.63	.54	.21	.14		.36-.84
Approach-avoidance model	95	3191.1	.73	.66	.18	.17	.56	.34-.82
Task-learning model	95	2992.1	.75	.68	.17	.10	.60	.61-.87
Four factor model	90	986.8	.92	.90	.09	.05	.32-.85	.73-.89
Task and normative goals								
One factor model	96	5248.3	.59	.49	.22	.16		.27-.85
Approach-avoidance model	95	3728.7	.71	.64	.19	.15	.72	.30-.93
Task-normative model	95	3376.1	.74	.67	.18	.11	.47	.59-.88
Four factor model	90	661.5	.96	.94	.07	.05	.30-.75	.73-.94
Complete model								
10 goal classes	679	3333.9	.93	.92	.06	.05	-.48-.85	.62-.94

**Structure of Achievement Goals for Teaching in Different Groups of Instructors**

The analyses of measurement invariance for status group (cf. Hypothesis 2) showed that the more parsimonious models did not fit the data worse than the models allowing for variations between the three status groups of instructors (Table 4). The  $-2\Delta LL$  difference tests were not statistically significant, and  $\Delta CFI$  and  $\Delta RMSEA$  were under the commonly suggested cut-off values of  $\Delta CFI = .02$  and  $\Delta RMSEA = .015$  (Chen, 2007), indicating complete measurement invariance across the status groups.

**Mean Level Differences between Different Groups of Instructors**

Additionally, mean level differences between the different groups were investigated (cf. Hypothesis 2). Figure 2 reports the  $z$ -standardized means and 95%-CIs for full professors, postdoc staff members and staff members without a PhD. On the multivariate level, a MANOVA with all 10 goal classes as dependent variables and group membership as a factor revealed significant differences between the three groups of instructors (Wilks  $\eta^2 = .889$ ; *multivariate*  $F(20,1934) = 5.874$ ;  $p < .001$ ;  $\eta^2 = .06$ ).

Table 4  
*Results of Measurement Invariance Testing*

Model	<i>df</i>	$\chi^2$	$\chi^2/df$	CFI	TLI	RMSEA	SRMR	$\Delta CFI$	$\Delta RMSEA$	TRd	$\Delta df$	<i>p</i>
Configural invariance	2069	4443.30	2.15	.923	.911	.043	.047					
Metric invariance	2129	4508.49	2.12	.923	.914	.042	.051	<.001	.001	55.73	60	.631
Scalar invariance	2189	4643.39	2.12	.922	.913	.042	.053	.001	<.001	78.50	60	.055
Strict invariance	2269	4633.18	2.04	.923	.920	.040	.060	.001	.002	76.13	80	.597
Complete invariance	2359	4789.21	2.03	.921	.921	.040	.079	.002	.000	108.81	90	.093

Note.  $n(\text{full professors}) = 221$ ,  $n(\text{postdoc staff members}) = 370$ ,  $n(\text{staff members without PhD}) = 475$ .

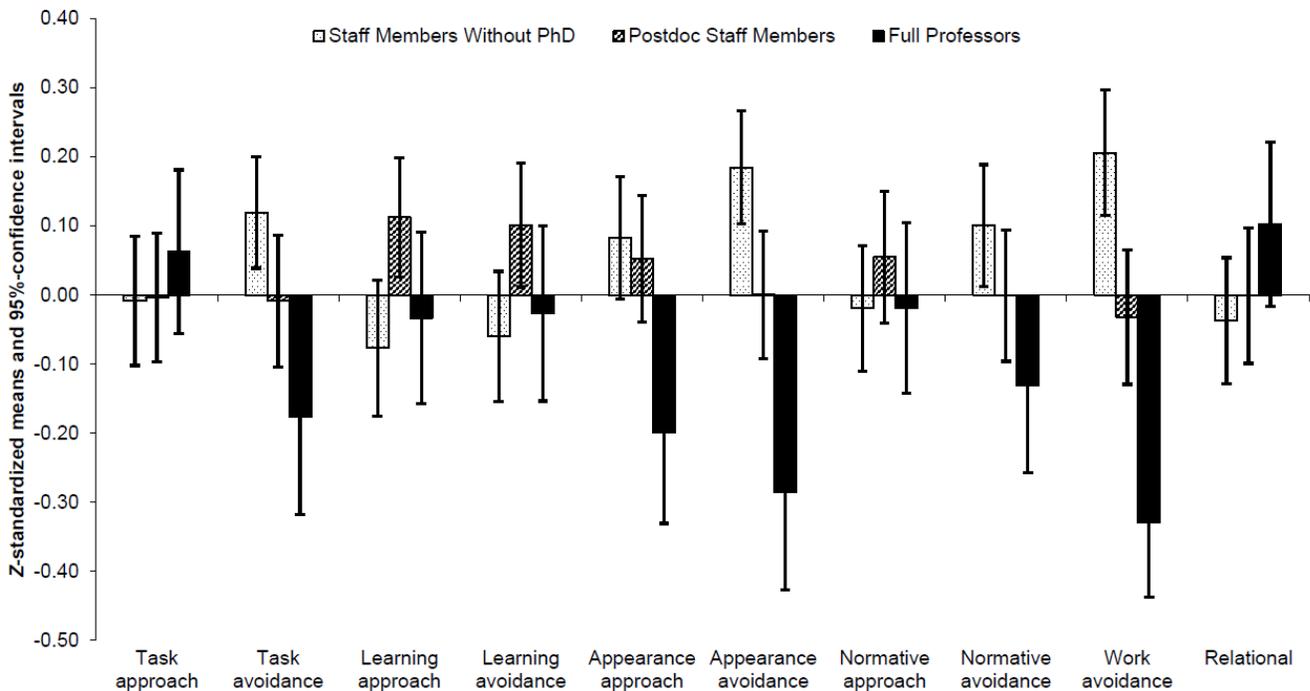


Figure 2. Means and 95%-confidence intervals (error bars) of the achievement goals for the three groups of instructors

As can be inferred from non-overlapping confidence intervals, full professors reported fewer work avoidance goals, and also fewer appearance goals, than the other instructors. Contrary to this, staff members without a PhD reported stronger work avoidance goals and appearance avoidance goals than the other instructors and, in comparison to postdoc staff members, also fewer learning approach goals.

**Relationships with Affective, Cognitive, and Behavioral Outcome Variables**

The results of the structural equation model depicting the effects of instructors’ goals on affective, cognitive, and behavioral outcome variables (Hypothesis 3) are summarized in Table 5. This model yielded a very good fit to the data ( $df=251$ ,  $\chi^2=483.2$ ,  $CFI=.99$ ,  $TLI=.98$ ,  $RMSEA=.03$ ,  $SRMR=.02$ ). Achievement goals explained substantial amounts of variance in the outcome variables ( $R^2=.19-.57$ ).

All achievement goals (with the exception of task avoidance and learning avoidance goals) had distinct and unique effects on the outcome variables (i.e., after controlling for all other goals). We found that positive affect was positively predicted by task approach, normative approach, and relational goals, and negatively predicted by normative avoidance and work avoidance

goals. Regarding the attitudes towards help seeking, we found that learning approach, task approach and relational goals had positive effects on perceiving help seeking as useful. Conversely, learning approach goals had a negative effect on perceiving it as a threat—a perception that was also positively predicted by work avoidance goals. Finally, teaching quality was positively predicted by task approach, appearance approach, and relational goals, and negatively predicted by appearance avoidance goals.

Additionally, we tested whether the strength of the effects of instructors’ achievement goals on the addressed outcome variables identified with the SEM varied between different groups of instructors. To this end, we compared a model in which the measurement part was restricted to being equal among the three groups but the regressions paths between goals and outcome variables were allowed to vary ( $df=983$ ,  $\chi^2=1433.75$ ,  $CFI=.994$ ,  $TLI=.987$ ,  $RMSEA=.020$ ,  $SRMR=.060$ ), with a model in which the latter paths were also restricted between all groups ( $df=1063$ ,  $\chi^2=1433.74$ ,  $CFI=.991$ ,  $TLI=.989$ ,  $RMSEA=.021$ ,  $SRMR=.065$ ). Since the more restricted model did not describe the data significantly worse ( $\Delta CFI=.003$ ,  $\Delta TLI=.001$ ,  $2\Delta LL(80)=83.13$ ,  $p=.38$ ), it can be assumed that the predictive effects of the different goals on the outcome variables were similar for the three status groups of instructors.

Table 5  
*Results of Structural Equation Modelling the Effects of Instructors’ Achievement Goals*

Predictor	Effects on affect, cognition, and behavior			
	Positive affect	Help seeking: useful	Help seeking: threat	Teaching quality
Mastery goals				
Task approach	<b>.63</b> (.07)	<b>.33</b> (.08)	-.13 (.09)	<b>.59</b> (.08)
Task avoidance	-.02 (.12)	.02 (.14)	-.14 (.16)	.06 (.13)
Learning approach	-.06 (.08)	<b>.36</b> (.09)	<b>-.19</b> (.10)	-.01 (.08)
Learning avoidance	.06 (.08)	-.08 (.10)	.06 (.11)	-.04 (.09)
Performance goals				
Appearance approach	.06 (.08)	-.09 (.14)	.12 (.16)	<b>.33</b> (.12)
Appearance avoidance	-.06 (.17)	.07 (.20)	.20 (.24)	<b>-.32</b> (.18)
Normative approach	<b>.12</b> (.06)	-.07 (.07)	.10 (.08)	.01 (.06)
Normative avoidance	<b>-.19</b> (.07)	.04 (.10)	-.09 (.11)	-.06 (.08)
Further goals				
Work avoidance	<b>-.18</b> (.03)	.04 (.04)	<b>.18</b> (.04)	-.01 (.04)
Relational	<b>.12</b> (.03)	<b>.09</b> (.03)	.05 (.04)	<b>.12</b> (.03)
$R^2$	.57	.34	.19	.46

*Note.* Presented are standardized coefficients (and their standard errors in brackets) of the paths of achievement goals on the outcome variables. Significant coefficients ( $p < .05$ ) are in boldface.

## Discussion

The present research addressed the structure and the relevance of university instructors' achievement goals based on the notion that this type of research provides insight into achievement motivation in the important context of higher education, and investigates major issues concerning the structure of achievement goals in general. Specifically, we addressed questions concerning performance goals (should appearance and normative aspects of performance be distinguished), learning goals (should learning avoidance goals be addressed), task goals (can task goals be separated from learning and performance normative goals), and further goal classes (should work avoidance and relational goals be considered). We analyzed goals' structure and relationships with affective, cognitive, and behavioral outcomes (positive affect, attitudes towards help, teaching quality) across different status groups of instructors.

The strengths of the present work include its innovative focus on an under-investigated population, the consideration of multiple outcome variables, the large and representative sample, and the analyses with latent variables. Our findings shed light on the structure of university instructors' achievement goals and the generalizability of this structure across different status groups of instructors, pointing to the robustness of the suggested theoretical achievement goal framework. In general, the results indicate that in order to describe the motivation of university instructors, achievement goals should be regarded in a more differentiated way by distinguishing between performance appearance and normative goals, learning goals and task goals (each with an approach and avoidance dimension), as well as work avoidance goals and relational goals.

The descriptive results (high means, broad ranges) indicate that achievement goals constitute important aspects of university instructors' motivation and that, at the same time, substantial inter-individual differences in the personal importance of different achievement goals exist. This particularly supports the supposition that, when describing instructor motivation, the achievement goal approach might possibly be better suited than other approaches, such as those based on expectancy-value or self-determination theory which often result in little variance being observed among university instructors (Stegmüller, Tadsen, Becker, & Wild, 2012).

## Performance Goals

Concerning university instructors' performance goals (Hypotheses 1a and 3), we found factor analytic evidence for the hypothesized splitting of performance goals not only into approach and avoidance components, but also into appearance and normative components, resulting in *four* performance goal classes in total (namely appearance approach, appearance avoidance, normative approach, and normative avoidance goals). Recent research has already pointed out that performance approach goals can be differentiated along an appearance and a normative component, and that each of these components has different effects on outcome variables (Senko & Dawson, 2017). The present study adds to this literature by pointing out that the normative vs. appearance-distinction should also be made with respect to performance avoidance goals. We conclude that the questions on how one wants (not) to appear and/or how one can outperform others (how one can avoid being outperformed by others) seem to be two questions that are fundamental to the nature of performance goals in general—independent of the question of whether one wants to approach or to avoid something.

Although these goal classes were rather highly correlated with each other, the magnitudes of the correlations also imply that each goal class contained a significant proportion of unique variance. Indeed, achievement goal researchers frequently noted that there tends to be a strong positive correlation between performance goals (e.g., Elliot & Murayama, 2008; Nitsche, Dickhäuser, Fasching, & Dresel, 2011; Pugh, Linnenbrink-Garcia, Koskey, Stewart, & Manzey, 2010). However, this is to be expected, since these constructs share a competence-based focus on performance and contain substantial semantic overlap (cf. Murayama, Elliot, & Yamagata, 2011). Analogous to the results of meta-analyses that have investigated operationalizations based on appearance or normative aspects of student performance approach goals as moderators of their effects with achievement (Hulleman et al., 2010) and other educational outcomes (Senko & Dawson, 2017), we found the four performance goal classes to be differentially associated with outcome variables. In addition, we extended this previous research by also considering performance avoidance goals bifurcated into appearance and normative standards, and found differential effects. To our knowledge, potentially divergent effects of different aspects of performance avoidance goals had not been investigated until now due to the substantial body of research that was (in contrast to performance approach goals) rather unanimous in regard

to the detrimental effects of performance avoidance goals.

With regard to performance approach goals, the above-mentioned meta-analyses (including mainly studies focused on students in educational settings) indicated a more adaptive profile for normative goals than for appearance goals. The associations we found for positive affect are in line with these findings, and it is quite plausible that being concerned about how well one does in comparison with others is directly related to emotional experiences at work. However, with regard to teaching quality, our results indicate that appearance approach goals, and not normative approach goals, might be more adaptive for university instructors. Although this result may be biased by social-desirability effects (instructors with strong appearance goals might also report higher teaching quality), and needs to be interpreted carefully, it can be taken as a first hint that, at least for university instructors, the effects of performance approach goals are more complex than previously thought. Instead of assuming maladaptive profiles for appearance and adaptive profiles for normative goals, our results indicate that appearance and normative goals might be associated with altogether different variables. The differential effects found for the respective avoidance goals support this idea. Also, the mean level differences between full professors and other groups of instructors (fewer appearance goals, similar normative goals) indicate that the appearance and normative aspects of performance goals constitute distinct facets that are pursued by different individuals to different extents.

Taken together, the present results emphasize that additionally splitting performance goals into appearance and normative components seems to be effective in resolving some of the previous inconsistent findings and the ongoing debate about the effects of performance goals (Senko et al., 2011; Senko & Dawson, 2017). In this regard, a specific investigation of their components might be a particularly auspicious research approach.

### Learning Goals

With regard to university instructors' learning goals, we found clear evidence regarding their structure (Hypothesis 1b), but mixed evidence concerning their predictive power (Hypothesis 3). Factor analytic evidence supported the idea that splitting learning goals into an approach and an avoidance component is adequate in order to describe instructors' achievement

goals. On the other hand, we found no significant associations between learning avoidance goals and outcome variables. Instead, substantial positive associations between learning approach goals and the perception of help seeking as useful were observed. All in all, this indicates that learning approach and learning avoidance goals can be separated, but that primarily learning approach goals appear to result in effects that are relevant in the investigated context.

On a descriptive level (i.e., mean level), however, learning avoidance goals were as prevalent as learning approach goals. Still, it is possible that learning avoidance goals unfold their effects in different domains (e.g., athletes or learners in extensive further training courses), towards different variables (e.g., attitudes towards refresher courses), or for different age groups (e.g., are more prominent among older instructors, but masked in our sample by the large number of younger instructors). Therefore, we cannot yet discard the effects of learning avoidance goals as irrelevant, but did not find support for their predictive power on the affective, cognitive, and behavioral outcomes investigated in the present study.

### Task Goals

For university instructors' task goals (Hypotheses 1c and 3), the confirmatory factor analyses indicated that they can be separated from both learning and normative goal classes, while at the same time approach and avoidance components should be taken into account. Further, the rather small magnitude of the factor correlations implies that these goals all express different aspects. Evidence for the relevance of task approach and task avoidance goals was found in associations with outcome variables, which were each different from the patterns found for learning and normative goal classes: Task approach goals resulted in the strongest and most advantageous relationship patterns with the outcome variables compared to all other goal classes. This pattern is in line with the superior effects found for task goals, compared to learning goals, when using the 3 x 2-model to assess school teachers' achievement goals (Mascret et al., 2015). Also, the distinct associations between task and learning approach goals with regard to positive affect are in line with the results of Brondino et al. (2014) indicating that especially being concerned about doing well on specific tasks may be related to emotional experiences at work.

However, it needs to be taken into account that simultaneously investigating task goals and learning goals

might suppress some of the effects known to be advantageous for learning goals. More specifically, it might be that striving to do well on a task constitutes the means for realizing learning approach goals (or normative approach goals). Although the latent correlations between learning approach and task approach (and normative) goals are not too high, it is possible that task goals are a mediator for realizing learning or normative goals and thus suppress (some of) their individual effects. Taken together, these results advise separating task goals from learning and normative goals, but future research might investigate goal hierarchy (i.e., pursue the question of whether task goals are located on the same level as learning and normative goals).

### Work Avoidance and Relational Goals

Concerning further relevant goal classes (Hypotheses 1d and 3), we found factorial analytic evidence that work avoidance and relational goals can be separated from all previously mentioned goal classes. Work avoidance and relational goals were not strongly correlated with the other achievement goals, which indicates that they constitute different aspects of motivation. This is in line with Butler's (2012) reasoning that the inherently interpersonal nature of teaching should also be kept in mind when describing the achievement motivation of teachers or instructors. In line with other studies (Butler & Shibaz, 2008; King & McInerney, 2014), our results also point to the existence of work avoidance goals. This was complemented by the results of the structural equation modeling, which illustrates that work avoidance goals have predictive power above and beyond the remaining goal classes. Work avoidance goals were related to perceiving the act of seeking help as a threat. Moreover, they were connected to experiencing less positive affect when teaching, which is in line with the results for students (e.g., King & McInerney, 2014) and school teachers (Wang et al., 2016). As expected, the mean levels indicate that work avoidance goals may be of different importance for different groups of instructors. Relational goals were associated with experiencing more positive affect, perceiving seeking help as more useful, and realizing higher teaching quality—which is in line with the adaptive associations found with school teachers' instructional behaviors (e.g., Butler, 2012). Although work avoidance and relational goals do not lie at the center of several researchers' conceptions of achievement goals based solely on competence, our results indicate that they pose a useful asset for describing instructors' motivation for teaching.

### Ten Achievement Goal Classes?

Confirmatory factor analyses also indicated that all ten goal classes can be distinguished, and that the proposed hexagon model of university instructors' achievement goals (Figure 1) described the data well. This model extends the 3 x 2 model (Elliot et al., 2011) that is rooted in the definition and valence of competence components, and distinguishes between task approach, task avoidance, learning approach, learning avoidance, performance approach, and performance avoidance goals. We further propose that appearance and normative aspects of performance should be distinguished, and that work avoidance and relational goals should also be included. It is worth noting that the visualization of the goal valence (expressed with the two different layers of the proposed model) implies that, for reasons of symmetry, the (positively valenced) relational goals and the (negatively valenced) work avoidance goals might also have an avoidance based, or approach based, counterpart (wanting to avoid conflicts or rejection; wanting to have a lot of work). However, at least for work avoidance goals, this does not seem plausible from a theoretical point of view. Additionally, to the best of our knowledge, there are no empirical indications that support the assumption that relational avoidance goals and work approach goals might in fact constitute relevant goal classes for university instructors (e.g., also in the interview study by Daumiller et al., 2015, no such goals were mentioned). Simultaneously, our findings indicated that task and learning avoidance goals can be separated, but this distinction may not always be central when analyzing cognition and behavior among university instructors in a given context. As such, the hexagon model offers a framework for visualizing and distinguishing the distinct achievement goals that may be used to characterize the different aspects of achievement goal setting. However, it needs to be taken into consideration that this does not imply that an achievement goal questionnaire needs to always assess all of these goal classes (resulting in a potentially uneconomic number of items), but rather that the separation and definition of each goal class needs to be made explicit. Depending on the situation and the research aim, one may very well only investigate certain goal classes that might be of relevance (cf. Mascret et al., 2015). Thus, the proposed model constitutes an overall model to clarify the possible distinctions between achievement goals.

### Differences Between Various Groups of Instructors

Since the results indicated complete measurement invariance, it can be concluded that for different groups of instructors, the identical structure of goals holds, and identical constructs are measured (Hypothesis 2). Even though the working context of full professors, postdoc staff members, and staff members without a PhD is quite different, our findings imply that the proposed distinctions between achievement goal classes hold true for the context of university teaching in general. Different groups of instructors differ, at most, in their mean level of achievement goals, but neither in the structure of the goals nor in the predictive effects of the goals on potential outcomes. Although only German university instructors were investigated, we consider the quite large stability of our findings across different groups of instructors working within different contexts as a first indication that our results may also be transferred to other higher education institutions or different countries. Still, it would be beneficial for future research to follow up on this claim and test how different structural aspects incorporated within different systems of higher education may influence instructors' mean levels of achievement goals and, possibly, the structure of these goals.

### Relevance of University Instructors' Achievement Goals

Overall, we found—in line with Hypothesis 3—that achievement goals explained a substantial amount of variance in the outcome variables, especially for the experience of positive affect and teaching quality. These results endorse that—irrespective of instructor status group—achievement goals are well suited to describe and predict important driving forces underlying an instructor's affective experience (e.g., positive effect), cognition (e.g., attitudes concerning help), and behavior (e.g., self-reported teaching quality). While most of the effects were in line with our assumptions, there were also some unexpected findings. For instance, unlike the results typically seen for school teachers (e.g., Dickhäuser, Butler, & Tönjes, 2007, Butler, 2007), we found that neither appearance avoidance nor normative avoidance goals were associated with perceiving help seeking as a threat. This is surprising since people who do not want to appear incompetent should feel particularly threatened by the idea of seeking help. However, our findings might point to important differences between school teachers and university instructors. Since

university instructors in Germany often consider themselves to be primarily researchers, not teachers (Bloch & Würmann, 2012), it might not be as threatening for them to ask colleagues for help with regard to their teaching as it would be for school teachers (the low mean found for this variable is in line with this assumption). Instead, asking a colleague might even be less threatening than appearing incompetent in front of a class of students. Contrary to our expectations, we also did not find work avoidance goals to be detrimental to self-reported teaching quality. This also conflicts with results typically found for school teachers (e.g., Butler & Shibaz, 2008; Retelsdorf, et al., 2010). It may be that for university instructors, work avoidance goals can be realized in a less harmful way than for school teachers, for instance, by transferring work to students (e.g., in the form of assigned presentations, which, when well supervised, might also result in adequate teaching results). It would be beneficial for future research to follow up on these effects, not only generally but also in order to obtain a better understanding of possible differences between the effects of achievement goals for school teachers and university instructors.

### Limitations and Practical Implications

Though the study at hand has a number of strengths, limitations also need to be mentioned: The cross-sectional design does not allow for causal inferences but only statements about coherences. It may also be possible that some measures could be partially affected by social desirability and therefore need to be interpreted carefully (cf. for instance, the low means of work avoidance goals or the assessment of teaching quality). Specifically, concerning the effect of performance appearance goals, it needs to be taken into account that instructors who want to appear competent (i.e., have high appearance approach goals) might also want to appear competent when responding to the survey (i.e., report high teaching quality).

Although more research is needed to understand the achievement goals of university instructors in-depth, some preliminary practical implications can already be drawn: Professional development of university instructors, for example, should focus on developing and enhancing learning goals (Urdan & Turner, 2005) and possibly also task goals, while instructors might be supported in dealing with a high work load by means other than pursuing work avoidance goals (e.g., prioritizing, using different resources). Regarding performance goals, our results imply that it might be more beneficial to address performance appearance goals (which are,

opposed to normative goals, related to teaching quality), and help university instructors to reduce performance avoidance goals regardless of appearance or normative standard.

## Conclusions

The results allow us to conclude that university instructors pursue a bundle of distinct achievement goals that vary inter-individually in strength, and predict affect, cognition, and behavior in university lecturing. Our results advise an examination of achievement goals in a more differentiated manner by distinguishing between two components of mastery goals (task, learning), two components of performance goals (appearance, normative), two valence dimensions of these goals (approach, avoidance), and two further relevant goal classes (work avoidance, relational). The results also emphasize the importance of the theoretical concept of instructors' achievement goals for the analysis of instruction and learning in higher education.

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(Appendix follows)

## Appendix

### Items to Assess Instructors' Achievement Goals for Teaching

Item texts are a translation of the original German items and are not yet validated in the English-speaking context, original German items in squared brackets (Item stem: In my current teaching activities ... [Bei meiner aktuellen Lehrtätigkeit, ...]).

#### Task Approach

... I want to fulfill the different requirements very well [möchte ich die einzelnen Anforderungen sehr gut erledigen].

... I want to be very good [will ich sehr gut sein].

... my goal is to teach very well [ist es mein Ziel, sehr gute Lehre zu machen].

... my main concern is to conduct my teaching tasks as well as possible [geht es mir darum, meine Lehraufgaben möglichst gut zu erledigen].

#### Task Avoidance

... I want to avoid fulfilling the different requirements poorly [möchte ich die einzelnen Anforderungen nicht schlecht erledigen].

... I want to avoid being bad [will ich möglichst nicht schlecht sein].

... my goal is to avoid teaching poorly [ist es mein Ziel, zu vermeiden, schlechte Lehre zu machen].

... my main concern is to not conduct my teaching tasks poorly [geht es mir darum, meine Lehraufgaben nicht schlecht zu erledigen].

#### Learning Approach

... I want to constantly improve my competences [möchte ich meine Kompetenzen stetig verbessern].

... it is important to me to learn something new [ist es mir wichtig, etwas Neues dazuzulernen].

... my goal is to expand my professional and methodological knowledge as much as possible [ist es mein Ziel, mein fachliches und methodisches Wissen so gut wie möglich zu erweitern].

... I want to further develop my own competences as much as possible [will ich meine eigenen Kompetenzen so gut wie möglich weiterentwickeln].

#### Learning Avoidance

... it is important to me to avoid having my competences not develop further [ist es mir wichtig, zu vermeiden, dass sich meine Kompetenzen nicht weiterentwickeln].

... I want to avoid not learning something new [möchte ich vermeiden, nichts Neues dazuzulernen].

... my goal is not to leave the opportunities to expand my professional and methodological knowledge untapped [ist es mein Ziel, die Chancen, die sich zur Erweiterung meines fachlichen und methodischen Wissens bieten, nicht ungenutzt zu lassen].

... I want to avoid failing to take full advantage of the potential to develop my own competences [will ich vermeiden, das Potential zur Weiterentwicklung meiner eigenen Kompetenzen nicht auszuschöpfen].

*(Appendix continues)*

### Appearance Approach

... I want other people to notice how good I am as an instructor [möchte ich, dass bemerkt wird, wie gut ich als Dozent(in) bin].

... I want to be perceived as competent [will ich als kompetent wahrgenommen werden].

... my main concern is that my teaching is rated well by others [geht es mir darum, dass meine Lehre von anderen als gut eingeschätzt wird].

... it is important to me that other people notice how good my teaching is [ist es mir wichtig, dass andere merken, wie gut meine Lehre ist].

### Appearance Avoidance

... I want to avoid having other people think that I am a bad instructor [möchte ich, dass andere nicht denken, dass ich ein(e) schlechte(r) Dozent(in) bin].

... I want to avoid being perceived as incompetent [will ich nicht als inkompetent wahrgenommen werden].

... my main concern is that my teaching is not rated as being bad by others [geht es mir darum, dass meine Lehre von anderen nicht als schlecht eingeschätzt wird].

... it is important to me that others don't think my teaching is bad [ist es mir wichtig, dass andere nicht denken, dass meine Lehre schlecht ist].

### Normative Approach

... I want to be better than my colleagues [möchte ich besser als meine Kolleg(inn)en sein].

... I want to be a more competent instructor compared to others [will ich im Vergleich zu anderen ein(e) kompetentere(r) Dozent(in) sein].

... my goal is to teach better than my colleagues [ist es mein Ziel, bessere Lehre als meine Kolleg(inn)en zu machen].

... my main concern is to be more competent than others [geht es mir darum, kompetenter als andere zu sein].

### Normative Avoidance

... I don't want to be worse than my colleagues [möchte ich nicht schlechter als meine Kolleg(inn)en sein].

... I don't want to be a less competent instructor when compared to others [will ich im Vergleich zu anderen kein(e) weniger kompetente(r) Dozent(in) sein].

... my goal is to not teach worse than my colleagues do [ist es mein Ziel, keine schlechtere Lehre als meine Kolleg(inn)en zu machen].

... my main concern is not being less competent than others [geht es mir darum, nicht weniger kompetent als andere zu sein].

### Work Avoidance

... it is important to me to have little to do [ist es mir wichtig, wenig tun zu müssen].

... I want to have as little to do as possible [will ich möglichst wenig tun müssen].

... it is my goal to have the least amount of work as possible [ist es mein Ziel, einen möglichst geringen Arbeitsaufwand zu haben].

... my main concern is to keep the amount of work as minimal as possible [geht es mir darum, den Arbeitsaufwand möglichst gering zu halten].

### Relational

... it is important for me to achieve a personal connection with students [ist es mir wichtig, mit den Studierenden auf eine persönliche Ebene zu kommen].

... one of my main goals to establish a partner-like relationship with students [ist es eines meiner wichtigsten Ziele, ein partnerschaftliches Verhältnis mit den Studierenden aufzubauen].

... my main objective to establish a positive relationship with my students [strebe ich vor allem danach, ein gutes Verhältnis mit den Studierenden zu entwickeln].

... my main concern is to have a friendly relationship with students [geht es mir darum, ein freundschaftliches Verhältnis mit den Studierenden zu haben].