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A Person-Centered Approach to Understanding Teachers' Classroom Practices and Perceived School Goal Structures

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ABSTRACT

We examined 179 teachers' perceptions of their own classroom practices and their school's motivational climate to illuminate the ways these perceptions work in concert. Using teachers' responses to two scales of the Patterns of Adaptive Learning Survey, a cluster analysis revealed three profiles of teachers described as cluster 1: *Aligned: Performance Moderate, Mastery High: We agree with everything!*; cluster 2: *Aligned: Performance Low, Mastery High: Yea to Mastery! Nay to Performance!*; and cluster 3: *Unaligned: Classroom Mastery with School Performance: We're Mastery Structured in a Performance School*. Cluster analyses revealed significant differences suggesting these teacher groups had distinct profiles. This study adds to the literature on goal theory aimed at understanding and advancing teachers' motivationally supportive practices and can be used in teacher education and development to help teachers identify, reflect on, and understand their classroom goal structures and how they relate to structures operating at the school level.

School contexts send motivational messages to students about what is valued (e.g., effort, competence, high achievement). These student-directed motivational messages are also interpreted by teachers and may influence decisions they make about their work. Within school contexts, teachers, through their own instructional practices, send messages to students about what is valued, thus shaping the classroom motivational climate (Wentzel, Muenks, McNeish, & Russell, 2017). Examining the relationship between teachers' perceptions of their classroom practices and the school's motivational messages to learners can be used in teacher education and development to help teachers identify, reflect on, and understand their practice in relation to motivational structures operating at the school level. Teacher educators can use this information to contextualize professional learning experiences.

Achievement goal theory provides an explanation of individual motivation in academic achievement contexts (Dweck, 1986). We used achievement goal theory as the motivational framework for examining motivational messages from the school and teachers' instructional practices because (a) there is documentation of the relevance of learners' achievement goals to learning outcomes such as achievement (e.g., Anderman

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& Wolters, 2006) or self-handicapping (Midgley et al., 2000), and (b) there is evidence that the learning context generated through school messages and teachers' instructional practices inform the goals that learners take up (e.g., Morin, Marsh, Nagengast, & Scalas, 2014). Thus, it seems essential to examine how teachers, who are key contributors to learners' motivational climate, perceive the messages sent from the school in relation to the messages they believe they send to students. Therefore we looked specifically at teachers' perceptions of their own classroom practices (i.e., classroom goal structure) and their school's motivational climate (i.e., school goal structure) in an effort to illuminate the way these perceptions exist in concert.

Relevant literature

Achievement goal theory

In achievement goal theory the primary motivator for learners engaged in achievement tasks is conceptualized as their personal goal orientation (Graham & Weiner, 2012). A *mastery goal orientation* is characterized by a desire to *develop* or improve competence, in contrast to a *performance goal orientation*, which is characterized by a desire to *demonstrate* competence, to show others that they are smart or successful (e.g., Graham & Weiner, 2012; Urdan, 2004). Performance orientations can be described as approach or avoidance. Learners with *performance-approach* goals seek to show their abilities to others whereas learners with *performance-avoidance* goal are motivated by a desire to avoid looking incompetent. Given the influence of achievement goals on student outcomes investigations into factors that shape these orientations must also be considered (e.g., Urdan, 2004; Wentzel et al., 2017).

Goal structures. *Goal structures* describe "the instructional practices and policies in a classroom, school or other academic setting" that support and/or foster learners' mastery and/or performance goals (Wolters, Fan, & Daugherty, 2011, p. 2). While research and theory on personal goal orientations has become more nuanced in the differentiation of approach and avoidance goals, the work in goal structures has not followed a similar path (e.g., Cho & Shim, 2013; Wolters et al., 2011). Despite efforts to measure performance approach and performance avoidance goal structures as distinct constructs the separate factors failed to emerge (e.g., Wolters, 2004). Thus, when considering goal structures the approach and avoidance distinction is not made. In environments with a mastery goal structure, students were more likely to report increased feelings of belongingness (Anderman, 2003), self-efficacy (Morin et al., 2014), and achievement (Wolters, 2004), and were less likely to engage in maladaptive behaviors such as cheating (Tas & Tekkaya, 2010). Not only do goal structures influence students' goal orientations, the goal structures themselves seem to have an influence on relevant outcomes. Thus, exploration into the nature of goal structures is important.

Achievement goal theory and teachers. Fives & Buehl (2016) described two lines of achievement goal theory research as related to teachers. The first line focused on *students'* motivation, and examined the relation of teachers' instructional practices to students' goal orientations (e.g., Shim, Cho, & Cassady, 2013; Wolters & Daugherty, 2007). The second line of research focused on *teachers'* motivation and the extent to which teachers' mastery or performance goal orientations for teaching were related to salient variables for teachers (e.g., Butler, 2007). In the present investigation we sought to contribute to teacher education by

exploring the first of these lines of research in order to explore relations between the classroom goal structures teachers report implementing in their classrooms and the school-level goal structures teachers experience.

Teachers' instructional practices and perceptions of school goal structures

Goal structures have been assessed at both the classroom and school levels. *Classroom goal structures* refer to the messages teachers send to students through instructional practices. *School goal structures* refer to school's motivational messages sent to both students and teachers.

Instructional practice/classroom goal structures. Teacher reports of classroom-level goal structures, involve a description of their classroom instructional practices. Because of this, there has been some confusion across the literature with the terms used to describe this construct such as *goal-related approaches to instruction* (Kaplan, Gheen, & Midgley, 2002), *teaching/instructional practice* (Wolters & Daugherty, 2007), and *classroom goal structures* (Shim et al., 2013; Wang, Hall, Goetz, & Frenzel, 2017; Wolters et al., 2011; Wolters & Daugherty, 2007). In this article we used the terms classroom goal structures and instructional practices interchangeably to refer to teacher reports of this construct.

Differences in classroom goal structures have been noted based on the grade level and subject matter taught (Wolters et al., 2011; Wolters & Daugherty, 2007). Elementary teachers reported stronger agreement with mastery classroom goal structures and weaker agreement with performance classroom goal structure than teachers at the middle- or high-school levels (Wolters et al., 2011; Wolters & Daugherty, 2007). Teachers of language arts/social studies had higher scores for mastery goal structures than did teachers of mathematics/natural sciences (Wolters et al., 2011).

Retelsdorf, Butler, Streblow, and Schiefele (2010) compared German teachers across three school settings; elementary schools, lower track secondary schools (Hauptschule), and higher track secondary schools (Gymnasium). Teacher reports of mastery-oriented instructional practices were higher among elementary teachers and lower track secondary teachers than high track secondary teachers. Conversely performance-oriented practices were significantly lower among teachers in elementary and high track secondary schools than among teachers in the low track secondary schools. This suggests that teachers may implement different instructional practices based on their perceived needs of their students. Teachers in the high track schools reported lower scores for instructional practices supporting both performance or mastery goals; perhaps these teachers perceived that students in these high track schools needed less motivational support in general.

School goal structures. School goal structures describe "the type of achievement goals emphasized by the prevailing instructional practices and policies" in the school environment (Wolters, 2004, p. 236). School goal structures that emphasize that the purpose of engaging in academic work is to *develop* competence are described as *mastery school goal structures*. In contrast, school goal structures that emphasize *demonstrating* competence are referred to as *performance school goal structures*. School goal structures are inferred by teachers from the instructional and policy practices implemented or endorsed at the school level.

Just as the goal structures that learners perceive at the classroom level influence their personal achievement goal orientations (e.g., Wolters, 2004), teachers' perceptions of school goal structures affect how they implement new reforms, experience belonging, and job satisfaction (Skaalvik & Skaalvik, 2013; 2017), or their own goal orientations for teaching (Cho &

Shim, 2013). In an examination of 211 teachers' perceptions of their self-efficacy, personal goal orientations for teaching, and school's goal structures, teachers who perceived the school goal structure to support mastery were more likely to report mastery goals for teaching and those teachers that perceived the school goal structure to endorse performance goals, were more likely to adopt performance goals for teaching (Cho & Shim, 2013).

School and classroom goal structures. Roeser, Marachi, and Gehlbach (2002) used cluster analysis to identify profiles of teachers based on their classroom goal structures and sense of self-efficacy and then compared those clusters across several variables including school goal structures. They identified five profiles to describe the perspectives of 134 elementary teachers based on their perceived classroom goal structures and self-efficacy. Significant differences that emerged across the clusters were attributed to classroom goal structures. Teachers who reported using more mastery classroom practices perceived significantly less performance messages from the school. Thus, teachers' classroom goal structures may be related to the messages set forth by the school.

Deemer (2004) also examined relations among teachers' perceived school goal structure, their classroom goal structure, and students' perceptions of a mastery classroom goal structure. Interpretation of path analysis suggested that teachers' perceptions of the school goal structure as mastery related to the use of mastery as well as performance classroom practices. Ciani, Summers, and Easter (2008) examined teachers' perceptions of school goal structures and their classroom goal structures across four Midwestern high schools. Three schools were designated as having a low school performance goal structure and one as having a high performance goal structure. Multivariate analyses indicated significant differences between teachers in the school with a high performance goal structure, and teachers in schools with a low performance goal structure. Teachers in the high performance goal structure school reported significantly more agreement with enacting performance classroom goal structures, and less agreement with classroom mastery goal structures, positive teacher community, and self-efficacy. Thus, teachers in the school with the high performance goal structure reported feeling less capable to teach (low self-efficacy), that their school as a whole lacked competence to support student learning (low collective efficacy), and that the teaching community was less supportive.

Rationale

Although researchers have noted relations between teachers' perceived school goal structures and students' perceptions of classroom goal structures, the interaction between teachers' perceived school and classroom goal structures has yet to be fully explored (Deemer, 2004). Ciani et al. (2008) and Deemer (2004) conducted variable focused investigations that relied on group comparisons and path analyses. These variable-oriented methods of data analysis, where the variable or relationships between variables was the main focus of theory and analysis, may be limiting because they do not produce an individual profile that represents a well-rounded view of the person as a functioning whole (Bergman, Magnusson, & El-Khouri, 2003). Further, neither of these investigations allowed for the exploration of how teachers' perceptions of school goal structures may coexist with their own reflections on practice (classroom goal structures).

Second, because teachers are likely to emphasize a mixture of performance and mastery-oriented instructional practices, studies that can account for teachers' multiple perspectives

on the nature of classroom and school goal structures are needed (Urdan, 2004). With the exception of Roeser et al. (2002) the research described above examined differences in teachers' endorsement of mastery or performance classroom goal structures, and did not account for the possibility that teachers may well endorse both of these perspectives and that different profiles in beliefs may emerge. Although Roeser et al. (2002) used a person-centered analysis, they used classroom goal structures and self-efficacy as the clustering variables. Thus, their analysis did not take into account the potential for teachers' perceptions of school goal structures to influence the overall clustering of teachers into profiles.

The present study addresses these gaps in the literature by using a person-centered approach to examine the relations between teachers' classroom instructional practices and their perceptions of school-level goal structures. Understanding whether teacher profiles emerge from these four perspectives (mastery and performance classroom and school goal structures) may provide insight into the interplay between teachers' perceptions of their instructional practices and the motivational messages they perceive from the school. Therefore, in this study, we addressed: What, if any, profiles emerge with respect to teachers' reported classroom practices and their perceptions of school goal structures?

Methods

Participants

Participants included 179 practicing K–12 teachers. Teachers were predominantly White (88%) and female (84%), were evenly divided across academic levels: 50% elementary (prek–5) and 50% middle/secondary, and most reported teaching more than one subject

Table 1. Participant demographic and background descriptions.

Demographics	%	Teaching background and context	%
Age		Teaching experience in years	
20–29	18	1–5	23
30–39	36	6–10	24
40–49	20	11–20	37
50–59	19	20+	16
60–70	7		
		Grade level	
Gender		Early and elementary (PreK–5)	50
Male	16	Middle and high school (4–12)	50
Female	84		
		Content area	
Race/Ethnicity		More than one subject	58
Caucasian	88	English	13
African American	6	Language Arts	9
Hispanic	5	Mathematics	6
Asian	>1	Science	7
Native American	>1	Social Studies	5
Other	1	Other	2
Education			
Bachelor's degree	8		
Bachelor's degree + Add courses	18		
Master's degree	28		
Master's degree + Add courses	44		
Doctoral degree	2		

area (58%). The participants were predominantly from the Northeastern United States, with 61% residing in New Jersey (see Table 1 for additional demographic information).

Procedures

We recruited participants with a modified snowball sampling procedure. The research team used professional online communities and our university's school-based partnership networks to request participation in our anonymous online survey. Respondents were asked to forward the link to colleagues, following the procedure used by Cho and Shim (2013) and Shim et al. (2013) to increase participation. We received complete data from 206 individuals, but only included the 179 individuals who were K–12 teachers in this analysis.

Measures

Demographic questionnaire. We administered a demographic questionnaire to provide a descriptive summary of the participants and to screen for participant eligibility (K–12 teacher).

PALS goal structures scales. Teachers' perceived goal structures were assessed with two scales: (a) Approaches to Instruction and (b) Perception of School Goal Structure for Students from the Patterns of Adaptive Learning Scales (PALS) instrument. The Approaches to Instruction scale included two subscales: classroom performance structures (five items; e.g., "I give special privileges to students who do the best work") and classroom mastery structures (four items; e.g., "I give a wide range of assignments, matched to students' needs and skill level"). Similarly, the Perception of School Goal Structure for Students included two subscales that measured school performance structures (six items; e.g., "In this school students who get good grades are pointed out as an example to others") and school mastery structures (seven items; e.g., "In this school the importance of trying hard is really stressed to students").

Teachers responded to items using a 6-point positively packed scale with 1 (*strongly disagree*), 2 (*mostly disagree*), 3 (*slightly agree*), 4 (*moderately agree*), 5 (*mostly agree*), and 6 (*strongly agree*). Teachers often provide affirmative responses in situations where they think they should agree with a particular statement and a positively packed scale increases the accurate measurement of a psychological construct by allowing for greater variance in responses (Brown, 2004). In addition, these data were gathered as part of a larger study and this modification allowed for consistency among the measures administered. Wolters et al. (2011) also changed the rating scale when they used the PALS in order to retain consistency across the measures they administered.

Analysis

Cluster analysis is "a multivariate statistical procedure that starts with a data set containing information about a sample of entities and attempts to reorganize these entities into relatively homogeneous groups" (Aldenderfer & Blashfield, 1984, p. 7). We were interested in identifying groups, or profiles of teachers that were similar to each other in their

instructional practices and perceived school goal structures but different from those in other groups. Typologies of teachers identified using cluster analysis recognizes that teachers can/do hold multiple goal structures at once, which aligned with our person-centered analytic approach.

Results

Preliminary confirmatory factor analysis

We used confirmatory factor analysis (CFA) to examine the model fit of the existing PALS factor structure with our data following the recommendations from Schreiber, Nora, Stage, Barlow, and King (2006). The initial model did not demonstrate acceptable fit. We reviewed the modification indices and found that two of the reverse-coded items loaded poorly (Q49; Q50). Reverse coded items can be problematic (Weijters, Baumgartner, & Schillewart, 2013). While some participants may read and respond to these items correctly, others may miss the word "not" and read the statement in the affirmative. Moreover, when we reviewed the language of these items we found that they could possibly be reinterpreted to align with a different sub-scale. For instance, Item 50 ("In this school: Grades and test scores are not talked about a lot") is intended to be a reverse-coded school performance item. That is, teachers who perceived their school to have a performance goal structure would disagree with this item. However, it is also possible that teachers who agreed with this item believed their school promoted a mastery goal orientation. Given the potential theoretical confusion, we dropped these items from further analyses. Modification indices also suggested that we allow the error variances to correlate between Q53 ("I encourage students to compete with each other"), item Q52 ("I help students understand how their performance compares to others"), and item Q60 ("Students are encouraged to compete with each other academically"). We could see how these items could share unique error variance beyond what the factors would suggest since they all describe an underlying notion of competition with others. The resulting model was demonstrated acceptable fit ($\chi^2 = 241.60$, $df = 162$, $p = .0001$; RMSEA = .052 [90% CI .038, .066]; TLI = .90; CFI = .90; SRMR = .07; Hu & Bentler, 1999).

Descriptive analysis

We conducted descriptive analyses to determine teachers' perceived goal structures (See Table 2). For the entire sample, perceptions of performance goal structures for the

Table 2. Means (standard deviations), reliability coefficients, and correlations among the GO factors.

Factor	No. of items	*M*(*SD*)	Alpha	1	2	3	4
1. Class performance goal structure	5	2.50(.83)	.69	1			
2. Class mastery goal structure	4	4.47(.92)	.68	.126	1		
3. School performance goal structure	5	2.67(.81)	.70	.371**	−.033	1	
4. School mastery goal structure	6	3.73(.80)	.81	.066	.511**	−.141	1

**$p \leq .01$.

classroom and school were descriptively lower than mastery goal structures for the classroom and school. We used Cronbach's alpha to assess the reliability of the subscales based on the CFA above. Reliabilities for the class goal structure subscales approached acceptable statistics (class performance, $\alpha = .69$; class mastery, $\alpha = .68$). Similar reliabilities were noted in Wolters and Daugherty (2007) for class performance ($\alpha = .76$) and class mastery ($\alpha = .66$). The reliabilities for the school level subscales were acceptable (School Performance, $\alpha = .70$; School Mastery, $\alpha = .81$). The reliability scores for class performance, school performance, and school mastery were consistent with what Midgley et al. (2000) reported in the PALS manual ($\alpha = .70$, .69, and .69), the exception was class mastery, which had a score of $\alpha = .81$. We examined the relations among these factors using the Pearson r correlation statistic (see Table 2). Significant relations emerged between teachers' perceptions of classroom and school performance goal structures ($r = .37$, $p \leq .01$) and mastery goal structures ($r = .51$, $p \leq .01$). In other words, there was a significant and positive relationship between teachers' instructional practices in the classroom and the goal structure they perceived from their school.

Cluster analysis

We identified teacher profiles in regard to their perceived classroom and school goal structures using cluster analysis. We used Ward's minimum variance hierarchical

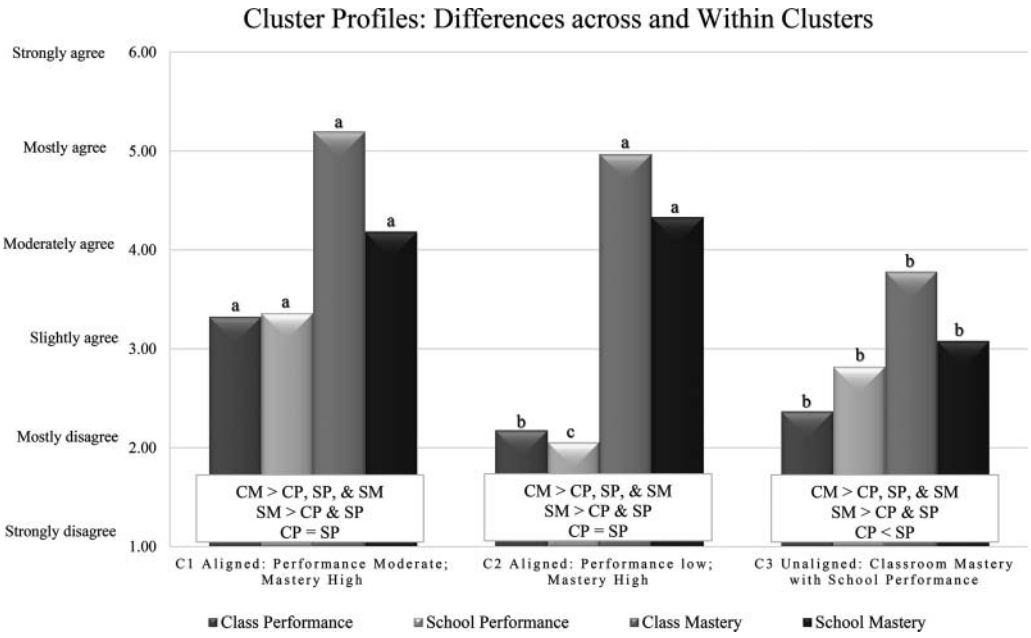

Figure 1. Cluster profiles: Differences across and within clusters. *Note*. Superscripts above columns indicate significant differences across clusters on each variable. For example, teachers in cluster 1 reported significantly higher classroom performance practices than teachers in clusters 2 and 3. And there were no significant differences in this belief among teachers in clusters 2 and 3.

Table 3. Across cluster comparisons.

Goal structure	Cluster 1 Aligned: Performance moderate; Mastery high	Cluster 2 Aligned: Performance low; Mastery high	Cluster3 Unaligned: Classroom mastery with school performance
Classroom performance	3.33 (.82)[a]	2.18 (.64)[b]	2.37 (.72)[b]
School performance	3.37 (.51)[a]	2.06 (.48)[c]	2.82 (.87)[b]
Classroom mastery	5.20 (.51)[a]	4.97 (.57)[a]	3.79 (.78)[b]
School mastery	4.19 (.49)[a]	4.33 (.54)[a]	3.09 (.56)[b]

Note. Superscripts indicate significant differences across clusters.

clustering technique to form initial clusters (Atlas & Overall, 1994; Ward, 1963). Analysis of the dendogram indicated that a three or four cluster solution would represent the data most accurately. Cluster solutions were validated using discriminant function analysis. A three-factor solution effectively forecasted cluster membership 95.5% and provided the most parsimonious profiles theoretically and descriptively (Figure 1). We conducted a one-way multivariate analyses of variance (MANOVA) to assess differences in reported goal structures across the clusters. Cluster membership served as the independent variable and the dependent variables were the four PALS factors from the CFA (i.e., class mastery, class performance, school mastery, and school performance). Box's and Levene's Tests of Equality were not violated. Analysis revealed a significant multivariate effect [$F(8, 346) = 61.58$, $p = .00$, Wilk's $\Lambda = 0.17$, $\eta^2 = 0.59$]. Analysis of the univariate tests suggested significant differences between groups in regard to perceived class performance goal structures [$F(2, 176) = 31.71$, $p < .00$, $\eta^2 = 0.27$], class mastery goal structures [$F(2, 176) = 82.49$, $p < .00$, $\eta^2 = .48$], school performance goal structures [$F(2, 176) = 21.12$, $p < .00$, $\eta^2 = 0.37$], and school mastery goal structures [$F(2, 176) = 110.34$, $p < .00$, $= \eta^2.56$].

Means and standard deviations for the goal structure variables are provided in Table 3. We used Scheffe's test to identify differences across clusters in the post hoc analyses. Significant differences at $p < .001$ level were found. These are indicated in Table 3 with superscripts. Of note the three clusters differed significantly from each other with respect to perceived school performance goal structures with cluster 1 reporting the highest endorsement, cluster 3 a moderate endorsement, and cluster 2 the lowest. Within-cluster comparisons of the goal structures were conducted with paired *t*-tests (i.e., six independent paired *t*-tests per cluster) using a Bonferroni adjustment and a conservative *p*-value (i.e., $p = .05/6 = .008$). Figure 1 illustrates significant within cluster differences in the small boxes at the bottom of each set of cluster bars. We considered within and across cluster differences to inform our descriptions of the clusters identified. Three profiles emerged.

We named cluster 1 *Aligned: Performance Moderate, Mastery High; We agree with everything! (Agree, All)*. Within this cluster, teachers' classroom mastery goal structure emerged as highest and classroom performance goal structure as the lowest. Their perceptions of school and classroom performance goal structures were similar to each other. Cluster 1 included 20% ($n = 36$) of our sample and there was a fairly even distribution of teachers across the elementary (preK–5; 47%) and the middle/secondary levels (4–12; 53%). Table 4 provides more demographic data by cluster.

We described cluster 2 as, *Aligned: Performance Low, Mastery High: Yea to Mastery! Nay to Performance! (Agree, Mastery)*. On average these teachers agreed with statements

Table 4. Descriptive statistics by cluster.

	Clusters					
	C1 Aligned: Performance moderate; Mastery high		C2 Aligned: Performance low; mastery high		C3 Unaligned: Classroom mastery with school performance	
	(n = 36, 20%)		(n = 61, 34%)		(n = 82, 45%)	
Demographics/Background	n	% of Cluster	n	% of Cluster	n	% of Cluster
Sex						
Male	4	11	7	12	17	21
Female	32	89	54	88	65	79
Education completed						
Bachelor's degree	8	22	—	—	6	7
Bachelor's degree +Add courses	6	17	16	26	11	13
Master's degree	9	25	19	31	22	27
Master's degree + Add courses	13	36	25	41	40	49
Doctoral degree	—	—	1	2	3	4
Years teaching						
1–5	4	11	15	25	22	27
6–10	12	33	18	30	12	15
11–20	15	42	19	31	33	40
20+	5	14	9	14	15	18
Grade level teaching						
Early and elementary (PreK–5)	17	47	41	67	31	38
Middle and high school (4–12)	19	53	20	33	51	62
Content area teaching						
More than one subject	15	42	47	77	41	50
English	7	19	5	8	12	15
Language Arts	3	8	6	9	6	7
Mathematics	3	8	0	0	8	10
Science	5	14	1	2	7	9
Social Studies	2	6	1	2	6	7
Other	1	3	1	2	2	2

assessing mastery goal structures (classroom and school) and disagreed with statements assessing performance goal structures (classroom and school). This group also reported the lowest perceptions of school performance goal structures across the clusters. While the pattern of responses in this cluster, *Agree, Mastery*, was similar to the pattern of responses found in cluster 1, *Agree, All*, the differences between mastery and performance goal structures were more pronounced among this group. The *Agree, Mastery* cluster made up 34% (n = 61) of our sample. Of note, 67% of these teachers taught at the elementary level and only 33% taught at the secondary level.

Cluster 3 was named *Unaligned: Classroom Mastery with School Performance: We're Mastery Structured in a Performance School (Unaligned, Performance)*. Teachers in this cluster gave the second strongest endorsement of school performance structures, yet along with teachers in the *Agree, Mastery* cluster had lower ratings of class performance goal structures compared to teachers in the *Agree, All* cluster. Also within this cluster, teachers' perceptions of school performance structure was significantly greater than their perceptions of classroom performance goal structure. Unlike teachers in the other clusters, these teachers' perspectives of classroom and school goal structures were not aligned, meaning they had different perceptions of the degree to which they supported performance goals in their classrooms and the performance goal structures present in the school. This cluster was the largest (n = 82) and more than half of the teachers in this cluster were middle/secondary school teachers (62%).

Discussion

The results of the cluster analysis suggest that teachers implemented and experienced both mastery and performance goal structures in their classrooms and schools. Teachers in the *Agree, All* cluster were the most likely to positively report enacting and perceiving multiple goal structures simultaneously. These findings support research conducted by Urdan (2004) who noted that the messages teachers send to students via their classroom goal structures can be mixed and sometimes contradictory. Moreover, when we examined the demographic data for teachers in the *Agree, All* cluster we noticed a relatively equal number of teachers at the elementary and secondary levels; this provides initial support that teachers, at all levels, hold multiple perceptions of goal structures simultaneously. This finding extends and provides further support for using a person-centered approach to examine teachers' classroom and school goal structures, as such methodologies can account for teachers' multiple perspectives and provide a more accurate representation of the phenomenon.

Another notable finding from the cluster analysis was that the *Agree, Mastery* cluster was comprised largely of elementary teachers who were more likely to endorse perceptions of mastery goal structures and disagree with statements assessing performance goal structures. Wolters et al. (2011) also found elementary school teachers reported higher endorsement of mastery goal structures and lower levels of performance goal structures compared to secondary school teachers. Those researchers speculated that this finding may be due to how elementary schools are organized. Typically, classrooms are self-contained and teachers are responsible for teaching all subject areas to the same group of students. Such extended time with the same group of students, the researchers argued, may give the teacher more opportunities to focus on developing each student's skills. Unlike teachers in *Agree, All* and *Agree, Mastery*, teachers in the third cluster, *Unaligned, Performance*, reported lower levels of performance goal structures in their classrooms compared to those perceived from the school level. The majority of teachers in this cluster taught at the secondary level. When we consider that in the United States, class rankings and other forms of performance systems become more prevalent in secondary schools, we can understand how teachers' classroom performance goal structures could differ from those espoused at the elementary school level (Deemer, 2004).

The emergence of the *Unaligned, Performance* cluster illustrates the importance of the person-centered approach. Note that our correlational analyses revealed that classroom performance goal structures were significantly and positively related to school performance goals structures; that is, as one increases (or decreases) so does the other. However, in our person-centered analysis there was a sub-group of teachers whose perspectives on classroom and school performance goal structures were unaligned. This suggests that when we look only at variables we may miss the unique perspectives of some groups of participants.

Last, teachers in the *Unaligned, Performance* cluster may feel pressured from the school-level performance messages to engage in more of this type of classroom instructional practice, which may lead to negative emotions. For example, Wang et al. (2017) reported that teachers' achievement goals predicted classroom goal structures that in turn predicted teachers' emotions. Specifically, mastery classroom goal structures led to feelings of enjoyment while performance classroom goal structures led to feelings of anxiety and anger. This suggests that teachers' instructional practices may have differential effects on teachers' affect.

Alternatively, we can also conceive of instances where this misalignment may also be adaptive, such that teachers who recognize this misalignment may strive to engage in more mastery-oriented classroom practices to counteract the school's performance messaging to students. Further research is needed to explore and tease out the intricacies in teachers' perceived goal structures.

Limitations

This study had several limitations. First, the sample size was relatively low and the data were quantitative, which precluded the use of more sophisticated statistical analyses or qualitative explanations of teacher practice. Second, the study was cross-sectional and did not include an outcome variable, so we were unable to speak to trends, or determine how different profiles might possibly interact with relevant outcomes. Additionally, although our sample consisted of K–12 educators in the United States, data collection relied on convenience and the majority of teachers were from New Jersey, which limited generalizability of our findings. However, because the survey was anonymous, participants may have provided more genuine responses. The data were self-report, which can lead to response bias or inconsistent interpretations (Fan et al., 2006). Wolters et al. (2011), however, argued for the use of self-report data for these variables, claiming that teachers are in a unique position to provide information about classroom goal structures, as they, in large part, determine the classroom goal structures that students experience, through the decisions they make about instruction.

Implications for research and practice

In this investigation we found that teachers reported enacting both mastery and performance supportive instructional practices in their classrooms and received both types of messages from the school. This finding has implications for teacher education and teacher learning. Given the different patterns that emerged across our profiles it may be useful for teacher educators to actively help teachers reflect on these messages and consider the ways that they influence their work and beliefs about that work. Teachers may benefit from considering the extent to which mastery or performance practices align with their core teaching beliefs and goals in order to discern potential tensions in their work (Korthagen, 2016).

The emergent profiles can be used by teacher educators in preservice settings to describe the potential motivational contexts that future teachers may experience. These findings can be used to enhance and contextualize case studies of practice (e.g., Merseth, 1996). Preservice teachers might consider their own responses should they find themselves in one of the described profiles, analyze each for any potential problems, and generate possible solutions or actions for their work in the future.

If teacher educators have the explicit goal of influencing teachers' use of mastery supportive instructional practices, then they need to take into account the context experienced by those teachers. Considerations of context should account for both the grade level taught as well as teachers' perceptions of their schools' goal structure. With these contextual elements unveiled, prior research suggests that self-efficacy supportive learning experiences may be particularly useful. Cho and Shim (2013) found that teachers with high self-efficacy for

teaching maintained mastery goal orientations even when they perceived the school goal structure to promote performance goals.

Illuminated in this investigation is the alignment (or not) of teachers' classroom practices in concert with the school's motivational messaging, which adds to the extent literature on goal structures. Across all clusters teachers reported significantly stronger mastery supportive classroom practices than any other variable, including school mastery goal structures. This suggests, that all teachers may perceive that they are more focused on the development of competence in their students than their school is. Thus, they may always think they are misaligned with the school climate. This kind of misalignment of goal structures between the classroom and the school may have consequences for teachers' practices. Current teacher educators should consider the complex patterns of motivational messages teachers receive and send when designing learning experiences for teachers.

Future research is needed to explore the possible effects of goal structure alignment (or misalignment) on teachers' practice and other salient variables. Longitudinal research into teachers' experiences of classroom and school goal structures could provide insight into the ways that school contexts influence and are influenced by the instructional practices that teachers employ. Such research could also provide information about the stability of teachers' perceptions and cluster membership as they gain experience in teaching and respond to changes in the environment (e.g., new testing mandates). In addition, qualitative research is needed to provide insight into how teachers experience the motivational messages from the school and district and the potential effects these messages have on teachers' professional experience. Qualitative investigations can also provide insight into how teachers are able to maintain mastery supportive goal structures in their classrooms despite the performance structures emphasized by their schools.

Conclusion

In this study, we used profile analysis to examine the relationship between teachers' classroom practices and their perceptions of their school's motivational climate. Within and across cluster analyses revealed significant differences suggesting these teacher groups had distinct profiles. In some instances, we found teachers' perceptions of classroom and school goal structures existed in concert with each other, and in other instances they did not. Interestingly, there were a group of teachers who maintained high mastery classroom structures, although the structures operating at the school level were predominately performance-based. This study adds to the literature on goal theory aimed at understanding and advancing teachers' motivationally supportive practices and can be used in teacher education and development to help teachers identify, reflect on, and understand their classroom goal structures and how they relate to structures operating at the school level.

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