



## Within-class consensus on classroom goal structures - Relations to achievement and achievement goals in mathematics and language classes



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### ABSTRACT

In the present study, we investigated students' shared perceptions, i.e., within-class consensus, on classroom goal structures, and how within-class consensus is related to achievement and achievement goals in mathematics and language classes. Within-class consensus was assessed for six dimensions of mastery goal structures, namely task, autonomy, recognition, grouping, evaluation, and time. Drawing on a sample of 1080 Austrian secondary school students enrolled in mathematics (22 classes) and language classes (24 classes), we estimated the effects of consensus on the outcome variables in multilevel models. The results indicated that achievement was positively predicted by consensus on evaluation in both subjects and by consensus on recognition in mathematics. Furthermore, in both subjects, consensus on recognition and evaluation negatively predicted performance-approach and performance-avoidance goals, and consensus on time negatively predicted performance-avoidance goals. Additionally, in mathematics classes, consensus on time negatively predicted performance-approach goals and consensus on task negatively predicted performance-avoidance goals. No relations between consensus and mastery goals were found in either subject.

### 1. Introduction

In school, students are grouped into classes and thus spend a considerable amount of time with their peers. Classroom processes are highly dynamic and involve ongoing interaction and communication. Through continuous interactions, groups construct a shared sense of social reality (Echterhoff, Higgins, & Levine, 2009). The assumption of shared perceptions within groups, i.e., consensus, is at the heart of research on climate constructs and statistical approaches to investigating their effects (multilevel analyses, e.g., Lüdtke, Trautwein, Kunter, & Baumert, 2006; Morin, Marsh, Nagengast, & Scalas, 2014). Moreover, the level of consensus within a group regarding the prevailing climate has successfully been linked to outcomes such as achievement (Griffith, 2000; Schenke, Ruzek, Lam, Karabenick, & Eccles, 2017), hence underlining the substantive meaning of consensus with respect to climate variables.

A prominent climate construct in educational psychology concerns the motivational climate that pervades a particular classroom setting. While motivational climate in classes can be investigated from different perspectives, one longstanding perspective for which copious research has amassed over the last few decades is Achievement Goal Theory

(e.g., Miller & Murdock, 2007; Murayama & Elliot, 2009; Skaalvik & Federici, 2016). In Achievement Goal Theory, the term classroom goal structures describes the motivational climate that teachers create in class through the use of specific instructional practices and goal-related messages (Ames, 1992; Lüftenegger, van de Schoot, Schober, Finsterwald, & Spiel, 2014; Meece, Anderman, & Anderman, 2006). Even though there is a plethora of research taking the Achievement Goal Theory perspective, studies on the role that consensus of students within classes (within-class consensus, e.g., Lüdtke et al., 2006; see also e.g., Schweig, 2016) might play are still lacking. As the study of shared perceptions offers a completely different viewpoint than that traditionally pursued in research on classroom goal structures focusing on mean levels, it would be illuminating to expand the scope of research on classroom goal structures to within-class consensus. Empirical evidence on the unique predictive function of consensus among students derived in research on other climate constructs (e.g., Griffith, 2000; Schenke et al., 2017), further points to the prospects for a richer understanding of classroom processes.

In light of this, the present study was designed to fill a void in the existing Achievement Goal Theory literature. We thus address the substantial question of whether within-class consensus on classroom

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goal structures – or the lack thereof – influences crucial student outcomes in language and mathematics classes. As outcomes, we focus on achievement and motivation in the form of students' personal achievement goals, i.e., mastery goals, performance-approach goals, and performance-avoidance goals (e.g., Elliot, 2005). Considering six distinct classroom goal structures dimensions - task, autonomy, recognition, grouping, evaluation, and time (Epstein, 1988; Lüftenegger, Tran, Bardach, Schober, & Spiel, 2017) – allows us to investigate consensus separately for each dimension and, relatedly, draw differentiated conclusions about the interplay between consensus and student outcomes.

## 2. Climate constructs and the concept of consensus

### 2.1. Conceptual and methodological underpinnings of consensus in survey research on climate constructs

The concept of consensus is of paramount importance for thoroughly understanding the nature of climate constructs from both a conceptual and a methodological angle. From a conceptual point of view, “consensus” designates a state of communally held perceptions among members of a group, i.e., the students within a class (Rubin & Fernandes, 2013; also see e.g., Marsh et al., 2012). In the case of classroom climate constructs, students within classes directly rate climate using items that have the classroom as the referent, not characteristics specific to individual students (Morin et al., 2014). Investigations of climate constructs based on student surveys rely on the assumption that all students in a particular classroom have the same – or at least a largely overlapping – mental image of the climate construct under study. From a methodological point of view, the shared perceptions of students within classes contribute to common variance among student ratings, and variance among students within the same classroom is thus treated as error or nuisance variation. Variance in aggregate ratings between classrooms, by contrast, is presumed to represent true variation in the quality of the climate construct of interest (e.g. Meade & Eby, 2007; Morin et al., 2014; Schweig, 2016). Ideally, each student within a particular class would assign the same rating to classroom climate constructs, such that the responses of students in the same class would be interchangeable (Lüdtke et al., 2006). The assumption of interchangeability justifies the aggregation of individual student ratings to form classroom-level climate constructs (Morin et al., 2014; see also Bliese, 2000; Cohen, Doveh, & Eick, 2001). Hence, aggregating individual ratings to evaluate the climate of a group requires establishing sufficient interrater agreement, i.e., consensus within the group (e.g., Bliese, 2000; Cohen et al., 2001). Accordingly, a number of researchers have recognized the significance of consensus when investigating climate constructs in classroom contexts (e.g., Gärtner, 2010; Nelson & Christ, 2016).

### 2.2. Outcomes of consensus on climate constructs

In addition to work addressing the conceptual and methodological implications of consensus for the study of survey-based climate constructs (e.g., Lüdtke et al., 2006), another line of research considers consensus scores themselves to be substantially meaningful and therefore seeks to explore outcomes associated with varying degrees of consensus. In organizational psychology, the predictive function of consensus has long been acknowledged, and researchers have linked consensus to various outcomes. In line with the claim that group environments in which members show consensus are likely to be less stressful, provide more positive experiences for group members and have members that exhibit more positive adaptations (Cole & Bedeian, 2007; Festinger, 1950, 1954; Griffith, 2000; Moreland & Levine, 1982, 1989; Sanders & Schyns, 2006), the results of studies on work groups indicate that higher levels of consensus on climate constructs can result in improved outcomes, e.g. in terms of cohesiveness, commitment, or

achievement (e.g., Felfe & Heinritz, 2010; Sanders & Schyns, 2006).

On the other hand, consensus and its potentially predictive role have received surprisingly little attention in research conducted in classroom or school settings. To date, only a very limited number of studies exist on this topic. These studies tend to adopt the view that consensus promotes positive outcomes. In this vein, it is hypothesized that classrooms in which students have highly varying perceptions might be less ideal environments for learning than classrooms in which students have more homogeneous perceptions (e.g., Schenke et al., 2017). Consistent with this assumption, a positive association between within-class consensus on classroom management as measured as teacher control, and teachers' impacts on students' achievement (i.e., value-added) has been reported (Schweig, 2016). In a further study, classroom-level heterogeneity, i.e., a lack of within-class consensus, on emotional support, performance focus, and autonomy support has been found to be negatively associated with student achievement (Schenke et al., 2017). Moreover, when investigating climate on the school level rather than the classroom level, Griffith (2000) showed that consensus on the climate dimension order and discipline moderated the relationship between mean levels on this dimensions and student achievement, with stronger positive relationships occurring in schools with higher degrees of consensus. To sum up, existing studies confirm the contention that consensus on aspects of classroom or school climate variables is predictive of positive outcomes in terms of achievement. However, given the paucity of studies on consensus in educational settings, there is a clear need for more research.

## 3. Achievement Goal Theory

In the present study, we apply an Achievement Goal Theory lens to the study of consensus effects. Achievement goal theory has emerged as one of the most prominent motivational theories in educational psychology (Senko, Hulleman, & Harackiewicz, 2011). Unifying both person-based motivational factors, i.e., achievement goals, and situation-based motivational factors, i.e., classroom goal structures, Achievement Goal Theory provides a comprehensive framework for the study of motivation and motivational climate.

### 3.1. Personal achievement goals

Achievement Goal Theory identifies different goal-directed achievement ambitions, i.e., personal achievement goals, as reasons why students approach and engage in achievement situations and learning tasks (Elliot & McGregor, 2001). Building on the important work of researchers during the early stages of Achievement Goal Theory development (e.g., Ames, 1992; Dweck & Leggett, 1988; Maehr, 1989; Nicholls, 1984), great strides have been made that have pushed the field forward (e.g. Brophy, 2005; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001; Elliot, Murayama, & Pekrun, 2011; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; Senko et al., 2011). To date, a number of achievement goal models are in existence. Among these, the trichotomous model of achievement goals (e.g., Elliot, 2005) enjoys the strongest empirical support in school settings and is the most widely used framework to study pupils' adoption of achievement goals (e.g., Lüftenegger et al., 2017). Correspondingly, in this paper, we confine ourselves to the trichotomous model of achievement goals. The trichotomous model distinguishes between a mastery (approach) goal and two types of performance goals: performance-approach and performance-avoidance goals. With the mastery goal, importance is attached to developing new skills and students value the process of learning itself (Ames & Archer, 1988; Elliot, 2005). A performance-approach goal reflects a concern for outperforming others and/or demonstrating competence, whereas a performance-avoidance goal is oriented towards avoiding performing worse than others and/or demonstrating incompetence (Elliot, 2005; Elliot & Murayama, 2008; Grant & Dweck,

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