Perceived structure and achievement goals as predictors of students' self-regulated learning and affect and the mediating role of competence need satisfaction

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ABSTRACT

We investigated the extent to which perceived structure and personal achievement goals could explain students' effective learning strategies and affect-related experiences in a sample of Greek adolescent students ($N = 606$; 45.4% males; mean age: $M = 15.05$, $SD = 1.43$). Having controlled for students' social desirability responses, we used multilevel analyses, and found that between-student (i.e., within class) differences in perceived structure related positively to learning strategies and positive affect and negatively to negative affect, with the relations being partially mediated by competence need satisfaction. In addition, we found between-student differences in the relations of mastery-approach, performance-approach, and performance-avoidance goals to the learning-strategy and affect outcomes. Moreover, at the between-class level, perceived structure related positively to learning strategies and positive affect, and negatively to depressive feelings. Finally, an interesting cross-level interaction between perceived structure and performance-avoidance goals for negative affect revealed that well-structured classrooms attenuated the positive, harmful relation between performance-avoidance goals and negative affect. These findings indicate the key role of structure and the endorsement of mastery-approach goals in the classroom.

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1. Introduction

Undoubtedly, classrooms characterized by appropriate support and guidance facilitate desired academic outcomes (Jang, Reeve, & Deci, 2010; Reeve, 2006) and the same seems true for students' endorsement of mastery-approach goals (Brophy, 2005; Elliot, 2005). However, it is unclear to what extent the learning environment of the classroom and students' endorsement of achievement goals independently (or interactively) predict outcomes, such as students' learning strategies and school-related affect. This research question has received some empirical attention. Research conducted from the achievement goal perspective has investigated the classroom environment according to how students perceive their teacher to promote particular achievement goals during daily classroom activities (e.g., Kaplan, Middleton, Urdan, & Midgley, 2002). However, as Urdan and Schoenfelder (2006) pinpointed, it remains unclear to what degree students' personal achievement goals "color" their perceptions about which goals are promoted by the teacher during everyday classroom activities.

In the present research, we relied on the notion of structure, as defined in Self-Determination Theory (SDT; Deci & Ryan, 2000; see also Skinner & Belmont, 1993), to more validly examine the independent and any likely interactive relations between classroom learning environment and personal achievement goals in the prediction of school-related outcomes. We defined and operationalized structure as the extent to which a teacher helps his or her students self-regulate their behavior to become (or remain) task-engaged by providing clear expectations, explicit directions, and appropriate guidance (Jang et al., 2010).

We have three main reasons for focusing on structure in conjunction with achievement goals when studying the learning environment of the classroom. First, both structure and achievement goals refer to competence. Structured classrooms are those that are said to be competence supportive (Skinner & Belmont, 1993), while achievement goals are conceptualized depending on how competence is defined and valenced (Elliot, 2005). Moreover, studying structure in conjunction with achievement goals is meaningful because it jointly examines some of the basic premises from two well-validated motivational frameworks, SDT (Deci & Ryan, 2000) and the achievement goal perspective (Elliot, 2005). Second, provision of structure as a classroom characteristic has been relatively

understudied (Farkas & Grolnick, 2010). For instance, although structure has been linked with outcomes such as more self-regulated learning (Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009), less problem behavior (Vansteenkiste et al., in press), and more active class engagement (Jang et al., 2010), its relation with class-related emotional experiences remains unknown. More importantly, except Jang et al.'s (2010) work, structure has hardly been studied as a between-classroom characteristic. Third, structure is said to relate to adaptive outcomes because it satisfies the need for competence (Seidel, Rimmele, & Prenzel, 2005; Skinner & Belmont, 1993), but this hypothesis remains largely untested in the SDT literature. The present study aimed to fill these gaps by employing a multilevel design, conceptualizing achievement goals as pure aims (Elliot, 2005), and taking into account students' potentially biased responses (i.e., social desirability).

1.1. Perceived structure

Structure pertains to the degree to which teachers provide the necessary information, cues, prompts, and examples, as well as the needed help, guidance, and feedback, so that students feel competent to attain what is expected of them (Reeve, 2006). Teachers who provide structure set clear rules, provide cause–effect rationales for such rules, communicate their expectations and rules in a clear manner, behave in a contingent way, and utilize teaching practices which are responsive, helpful, and supportive (Skinner, Zimmer-Gembeck, & Connell, 1998). Specifically in regard to teaching practices, Jang et al. (2010) have summarized that teachers usually rely on three types of instructional practices to establish the above components of structure. First, they outline the framework within which their students are expected to act by providing clear, detailed, and easily understood directions. In this way, teachers facilitate students' successful regulation of their daily class-related activities. Second, they supply a course of action to their students to guide them during daily task engagement. They support students step-by-step through appropriate instructional support, such that students feel capable of achieving their learning objectives. Third, they provide informational competence-related feedback, thereby helping their students realize their actual potential and the steps they need to take to further develop their skills. In sum, all the above teaching practices are thought to set up a well-structured learning environment wherein students have opportunities to fulfill their need for competence (Skinner et al., 1998; see also Farkas & Grolnick, 2010).

In contrast, lack of structure leads to a permissive, laissez-faire, and even chaotic learning environment. When structure is absent, students have difficulty knowing what is expected from them and may experience their teacher as unhelpful and inconsistent. As students in chaotic environments feel less capable and sure of how to proceed, they are less likely to become (or remain) task-engaged and to exhibit positive emotionality (Reeve, 2006; Skinner et al., 1998). As the few correlational (e.g., Sierens et al., 2009), observational (e.g., Jang et al., 2010; Seidel et al., 2005), and interventional (e.g., Tessier, Sarrazin, & Ntoumanis, 2010) studies have evidenced, structure is linked with many desired outcomes, including active class engagement, self-determined motivation, and use of high quality cognitive processes.

In our research we aimed to extend this limited body of work by examining structure at both the between-student and between-class level. Specifically, at the between-student level, we examined whether perceived structure relates positively to learning and positive affectivity, and whether competence need satisfaction can account for (i.e., mediate) these relationships. At the between-classroom level, we examined whether structure can explain any differences in learning outcomes between students belonging to different classes, and whether perceived structure at the class level

would be especially beneficial for students endorsing particular achievement goals. Before discussing the latter hypothesis in greater detail, we briefly discuss the different achievement goals and their effects on educational outcomes.

1.2. Achievement goals, learning strategies, and affect

Within the achievement goal tradition, four types of achievement goals have been delineated (Elliot & McGregor, 2001). *Mastery-approach goals* represent goals focusing on self-improvement or mastering a task; *performance-approach goals* represent one's aim at outperforming others, whereas *performance-avoidance goals* reflect one's aim at avoiding being worse than others. Finally, *mastery-avoidance goals* mirror one's strivings to avoid learning less than one possibly could or performing worse than he or she did in the past. Because mastery-avoidance goals are more likely to be endorsed by elderly people (Ciani & Sheldon, 2010; Elliot, 1999), they are not considered in the present research.

Numerous studies have shown that mastery-approach goals are associated with a host of positive outcomes, including intrinsic motivation, deep-level cognitive processing, meta-cognitive regulation, and positive affect (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). These relations come as no surprise because mastery-approach goals are assumed to fuel intrinsic interest and curiosity; they thus represent goals in which learning and improvement is of primary focus. In contrast, performance-avoidance goals are rather maladaptive, as they seem to divert students' attention away from self-regulated learning and self-improvement, and toward concerns about avoiding unfavorable social comparisons. Consequently, performance-avoidance goals are more likely to be associated with less effective learning strategies (e.g., Diseth & Kobbeltvedt, 2010) and more negative affect (e.g., anxiety; see Elliot & McGregor, 2001).

Regarding performance-approach goals, research has revealed a blurred picture (Elliot & Moller, 2003), likely because of the dual nature of performance-approach goals. That is, performance-approach goals concurrently entail an approach tendency (and thus an appetitive form of motivation, see Elliot, 2005) as well as social comparison processes. Therefore, although performance-approach goals do orient students towards success, they are less likely, compared to mastery-approach goals, to facilitate deep-level learning (Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008) and to invoke positive emotions during engagement in learning activities (Elliot & Moller, 2003).

One likely reason for the sometimes inconsistent findings that concern performance-approach goals may lie in the potentially moderating role of the learning environment (Barron & Harackiewicz, 2003). Therefore, in our study, we also examined to what extent achievement goals and students' perceptions of structure interact in the prediction of self-regulated learning and affect. Specifically, we explored two alternative patterns of relations. We investigated whether structured learning environments would (a) be even more helpful for students endorsing approach goals, presumably because in a well-structured classroom students with a tendency to approach success may feel even more competent to attain their goals; or (b) attenuate the negative relationship between avoidance goals and positive outcomes, presumably because in highly structured classrooms students with performance-avoidance goals would feel less incompetent than they otherwise would feel in ill-structured classrooms; these students thus might especially benefit from a well-structured classroom.

1.3. Present research

We aimed to investigate the relations among achievement goals, perceived structure, learning strategies, and affective experiences in