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## Four-dimensional classroom goal structure model: Validation and investigation of its effect on students' adoption of personal achievement goals and approach/avoidance behaviors



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#### ABSTRACT

In this study, based on the  $2 \times 2$  achievement goal framework (Elliot & McGregor, 2001), a four-dimensional classroom goal structure model (4CGS model) containing mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goal structures was proposed and tested using the data of 941 7th-grade Taiwanese students. The results of exploratory factor analysis, confirmatory factor analysis and a discriminant validity test supported the independence of the four CGS constructs and revealed that the 4CGS model provided a far better fit than the other alternative models. Latent variable regression analysis disclosed differential associations between the 4CGS model and several important consequences (i.e., personal achievement goals, approach behaviors, and avoidance behaviors). Taken together, this study showed that CGS could indeed be divided into four distinct constructs that had differential predictive effects on these consequences.

#### 1. Introduction

Research on classroom goal structure (CGS) belongs to the contextual level of achievement goal theory, which focuses on the effects of the learning environment on student achievement-related motivations and outcomes (Lau & Nie, 2008; Wolters, 2004). As with personal achievement goals, the dimensions of CGS have evolved and developed from a dichotomy (i.e., mastery vs. performance; Ames, 1992) to a trichotomy (i.e., mastery, performance-approach, and performanceavoidance; e.g., Diseth & Samdal, 2015; Karabenick, 2004; Schwinger & Stiensmeier-Pelster, 2011), and related empirical evidence has supported the existence of different CGS taxonomies. To date, the CGS framework remains three dimensional, although a four-dimensional achievement goal framework (i.e., Elliot & McGregor, 2001) has been proposed and empirically supported. Therefore, the four dimensions of the CGS framework should be constructed to better capture student perceptions of the goal structure in educational settings and to examine its effects. The present research proposes a four-dimensional CGS (4CGS) model and considers whether the mastery goal structure (MGS) can be bifurcated into mastery-approach and mastery-avoidance. This model, based on the 2 × 2 achievement goal framework (Elliot & McGregor, 2001), integrates mastery-performance goals with approachavoidance motivations to formulate four different types of CGSs:

mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance. The current study aims to validate the conceptual and empirical effectiveness of the 4CGS model and examines the links between the 4CGS model and its consequences (i.e., personal achievement goals and approach/avoidance behaviors).

#### 1.1. Perceived CGS

Perceived CGS refers to how teachers deliver information to students through assignments, assessments, and the allocation of their authority, thereby highlighting certain ability-related goals (Ames, 1992). In the same classroom, students might interpret the messages delivered by teachers differently because of family influences, prior experiences, teacher-student interactions, and events (Ames & Archer, 1988). In many studies, the perceived CGS can be considered the "psychological environment" (Ames, 1992) in which individuals subjectively, rather than objectively, interpret the classroom context (e.g., Karabenick, 2004; Michou, Mouratidis, Lens, & Vansteenkiste, 2013; Schwinger & Stiensmeier-Pelster, 2011).

Initially, a two-dimensional CGS was proposed based on normative goal theory. An MGS describes students' perceptions of the classroom that emphasize learning, effort, task mastery, and diligence in improving one's skills. Conversely, a performance goal structure (PGS)

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describes students' perceptions of the classroom that highlight their abilities relative to those of others and demonstrate their competence (Ames, 1992; Ames & Archer, 1988). Empirical studies have shown that MGS is related to superior adaptive cognition, emotion, and achievement outcomes, whereas PGS is associated with poorer adaptive outcomes or superior maladaptive outcomes (Kaplan & Midgley, 1999; Michou et al., 2013; Wolters & Daugherty, 2007).

Following revised goal theory, several researchers (e.g., Kaplan, Gheen, & Midgley, 2002; Karabenick, 2004; Wolters, 2004) have attempted to include approach-avoidance motivations in PGS to form a trichotomous CGS framework. The newly added concept of a performance-avoidance goal structure (PAVGS) was assumed to better reflect students' perceptions that emphasize the avoidance of underperforming in the classroom and of being viewed as incompetent (Schwinger & Stiensmeier-Pelster, 2011). Existing studies have provided evidence supporting the existence of a three-goal structure via exploratory factor analysis (EFA; Diseth & Samdal, 2015) and confirmatory factor analysis (CFA; Schwinger & Stiensmeier-Pelster, 2011) and have revealed differential associations of the trichotomous CGS with consequences such as personal achievement goals (Schwinger & Stiensmeier-Pelster, 2011), motivational engagement (Diseth & Samdal, 2015) and helpavoidance (Karabenick, 2004).

#### 1.2. Mastery-avoidance goal structure

Thus far, the trichotomous CGS framework has distinguished performance-approach from performance-avoidance goal structures, but the MGS remains undivided. The question arises as to whether the MGS can be further divided into mastery-approach and mastery-avoidance because of cultural differences.

In Eastern culture, a famous Chinese saying states, "學如逆水行舟,不 進則退" (learning is like sailing against the current, either you keep forging ahead or you fall behind) (Jin & Cortazzi, 2008, p.193). The influential Chinese philosopher Confucius recommended, "學如不及,猶 恐失之" ("Learn as if you could not reach your object, and always fearing also lest you should lose it" (Legge, 2010)). These thoughtprovoking saying or maxims address an important concern in the Chinese education system: that learning is conducted with diligence and effort (Jin & Cortazzi, 2006). Students are counseled to not only retain what has been learned to avoid losing their acquired skills but also progress to avoid regressing in their abilities. This view has a strong influence on both Chinese instructors' teaching and students' learning. Several examples can be provided for Chinese learning settings: most teachers/parents remind students to study hard every day to prevent a standstill in learning. These teachers regularly confirm student's learning and require that students not forget previous knowledge or misunderstand previous material. Some Chinese teachers do not attach importance to student achievement, stressing comparisons to their previous performance rather than that of their peers. Teachers or parents often demand that students set a standard for themselves; if students fail to meet that standard, they may be punished (the severity of which depends on how the number of points by which the student falls short) (Chang, 2015). Some strict Chinese teachers even hold that students are not allowed to make any mistakes on the material they have been taught, and their expectations for students are perfectionistic. The aforementioned situations clearly show that some Chinese teachers create classrooms that emphasize mastery-avoidance goals. Thus, the mastery-avoidance goal structure (MAVGS) likely exists in the Chinese education system.

However, Ho and Hau (2008) claim that approach-avoidance motivations are more important than mastery-performance goals in understanding the effects of goals on Chinese students' academic outcomes. Schwinger and Stiensmeier-Pelster (2011) have argued that learners, through their subjective perceptions of CGS, are able to perceive the different goal types emphasized by teachers. Specifically, if a teacher stresses performance goals in the classroom, then students

might perceive either performance-approach or performance-avoidance goals when interpreting the messages delivered by their teachers. Based on this premise, we assume that if a teacher stresses mastery goals in the classroom, then students will interpret the classroom context in either an approach or an avoidance manner, which might influence students' perceptions of mastery-approach or mastery-avoidance goals. A few studies have tried to adopt the four CGSs to make predictions about learning processes and behaviors. For example, Peng and Cherng (2005) found that mastery-approach goal structure (MAPGS) and MAVGS had differential links to three types of help-seeking behavior. Specifically, a MAPGS positively predicts instrumental help seeking and negatively predicts help avoidance but does not predict executive help seeking. An MAVGS was able to slightly and positively predict instrumental help seeking but failed to predict executive help seeking and help avoidance. Peng, Cherng, Chen, and Lin (2012) detected that an MAPGS had positive impacts on mathematical creativity problems (i.e., overcoming fixations and divergent production) through autonomous motivation and that MAVGS had positive impacts on divergent production via autonomous motivation. Preliminary evidence supporting the existence of MAVGS is derived from the two aforementioned studies. Accordingly, the present study investigated whether the MAVGS construct exists.

The existing literature supports the existence of mastery-avoidance goals at the personal level using a sample of Taiwanese students (e.g., Cherng, 2003; Huang, 2012; Lau & Lee, 2008). This paper argues that an equal number of goals exist at both the personal and contextual levels to better explain the consistent corresponding relationship between perceived CGS and personal achievement goals and capture how the two together influence individual learning patterns in the Chinese context. Accordingly, the present study incorporates mastery-avoidance goals into perceived CGS to test whether the MAVGS construct exists; furthermore, it explores whether mastery-approach and mastery-avoidance goal structures predict different consequences.

#### 1.3. Construction of the 4CGS model

Based on the  $2 \times 2$  achievement goals framework (Elliot & McGregor, 2001), this study proposes a 4CGS model. Student perceptions of their teachers' views of their competencies are at the core of the CGS construct. The 4CGS model is based on two dimensions: student perceptions of how competence is defined (mastery vs. performance) and how competence is valenced (approach vs. avoidance) by teachers.

First, student perceptions of how competence is defined by teachers" refer to their teachers' evaluations of student performance with regard to different standards. Three different standards were identified: absolute (students perceive task requirements from teachers), intrapersonal (students perceive that teachers evaluate their competencies based on their past accomplishments or potential), and normative (students perceive teachers' attitudes toward a difference in performance between the individual and his or her peers). Specifically, when a teacher is evaluating competence, students perceive that the teacher relies on three standards: whether the students understand and have mastered the learning tasks (an absolute standard), whether each student has improved their performance and developed their knowledge and competence (an intrapersonal standard), and whether a student performs better than other students (a normative standard). The first two standards are based on similar concepts and ideas (Elliot & McGregor, 2001). Based on this similarity, the absolute standard was merged with the intrapersonal standard to form a single standard. Therefore, the three standards were reduced to two: absolute/intrapersonal and normative. In the CGS literature, the former refers to the MGS, whereas the latter refers to the PGS. In the present study, the mastery-performance goal structure distinction is the first fundamental dimension of the 4CGS model.

Second, student perceptions of how competence is valenced by teachers refer to their teachers' evaluations of student performance in

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