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Predicting Singapore students' achievement goals in their English study: Self-construal and classroom goal structure

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Abstract

This study examined the role of self-construal and classroom goal structure in predicting Singapore secondary students' achievement goals in their English study. Students from 104 classes were administered surveys of achievement goals, classroom goal structure, English self-concept, and self-construal. The results of two-level hierarchical linear modeling showed that after controlling for gender, previous English achievement, and English self-concept, interdependent self-construal significantly predicted mastery approach and avoidance goals, while independent self-construal was associated with performance approach, performance avoidance, and mastery approach goals. Mastery classroom goal structure predicted mastery approach and avoidance goals, whereas performance classroom goal structure predicted performance approach and avoidance goals as well as mastery avoidance goals. In addition, students with interdependent self-construal in classrooms with a performance focus were more likely to endorse mastery approach, mastery avoidance, and performance avoidance goals, while students with independent self-construal in classrooms with a performance focus tended to have performance approach goals. This study provides validation for the 2×2 framework of

achievement goals, and advances our knowledge of how students adopt multiple goals. The findings are related to the educational achievement context of Singapore.

Keywords: achievement goals, self-construal, classroom goal structure

1 Introduction

As an active process, learning requires motivated and deliberate engagement. During the past 30 years, a variety of motivational theories or constructs have been developed from a social cognitive perspective in the field of educational psychology (for a review, see Eccles & Wigfield, 2002), among which achievement goal orientation has become one of the most prominent frameworks to understand students' achievement motivation (Anderman & Wolters, 2006; Elliot, 2005; Kaplan & Maehr, 2007; Meece, Anderman, & Anderman, 2006). Rather than focusing on the content of what people are attempting to achieve, goal orientations define why and how people try to achieve various objectives (Kaplan & Maehr, 2007). In general, there are two lines of research on achievement goals over the past several decades. First, researchers extensively investigated how achievement goals influence students' engagement in learning activities and their emotional experiences in school. Second, researchers studied how school and class environmental characteristics elicit or affect students' achievement goal orientations. We review these two lines of research in the following section.

1.1 Achievement goals and learning

Achievement goal researchers mostly focus on two primary goal orientations, mastery and performance (Ames, 1992b). The aim of a student pursuing mastery goals is to develop competence through the acquisition of new skills, whereas students pursue performance goals to outperform or demonstrate competence relative to others. Because mastery and performance goals represent different ways of thinking about competence, theorists argue that these goals will create a framework for how individuals approach, experience, and react to achievement activities (e.g., Dweck & Leggett, 1988; Nicholls, 1984). In general, this argument has been supported by empirical research that has shown that mastery goal orientations are related to more adaptive

patterns of learning. For example, in an influential review of the early achievement goal literature, Ames (1992b) noted considerable benefits of pursuing mastery goals over performance goals. Although the positive links between mastery goals and academic performance has not been consistently found, the generally positive learning patterns associated with mastery goals are also reported in a more recent review (Meece et al., 2006). In addition, while some researchers reported that performance goals were associated with maladaptive learning behaviors, such as anxiety, self-handicapping tactics, and help-seeking avoidance (Middleton & Midgley, 1997; Midgley, Kaplan, & Middleton, 2001; Ryan & Pintrich, 1997), other studies reported that performance goals could facilitate learning. For example, positive relations were found between performance goals and adaptive learning variables, such as task values (Bong, 2001; Church, Elliot, & Gable, 2001; Wolters, Yu, & Pintrich, 1996), academic self-concept (Pajares, Britner, & Valiante, 2000; Wolters et al., 1996), and graded performance (Elliot & McGregor, 2001; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000).

In recent years, researchers have distinguished two types of performance goals (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Murayama, Elliot, & Yamagata, 2011), performance approach goals that focus on the attainment of favorable judgments of competence, and performance avoidance goals that focus on avoiding unfavorable judgments of ability. Performance avoidance goals have been found to be associated with low efficacy, high anxiety, self-handicapping strategies, low intrinsic motivation, and low grades (Elliot & Church, 1997; Elliot & McGregor, 2001; Luo, Paris, Hogan, & Luo, 2011; Urdan, Ryan, Anderman, & Gheen, 2002). Although pure performance approach goal orientations are mostly considered to be positive, they are likely to transform to performance avoidance goals in the face of difficulties or

the likelihood of failure (Luo et al., 2011; Middleton, Kaplan, & Midgley, 2004; Van Yperen, 2006).

Similarly, the approach and avoidance distinction has also been made for mastery goals (Elliot & McGregor, 2001; Elliot & Murayama, 2008; Pintrich, 2000). When approaching an activity with mastery approach goals individuals make efforts to improve and develop their skills, while when approaching an activity with mastery avoidance goals individuals are concerned about misunderstanding and failing to learn well. A few studies have been conducted to examine mastery-avoidance goals, and found that this dimension was negatively associated with intrinsic motivation and perceived competence (Cury, Elliot, Da Fonseca, & Moller, 2006; Van Yperen, 2006), positively related to anxiety (Elliot & McGregor, 2001) and help-seeking threat (Karabenick, 2003), and not related to performance (Elliot & Murayama, 2008; Yeo, Loft, Xiao, & Kiewitz, 2009). However, more studies are still needed to examine the prevalence of this construct and how it diverges from the other three dimensions of achievement goal orientations.

In addition to the approach/avoidance distinction within mastery and performance achievement goals, recently researchers proposed that individuals can endorse multiple goals simultaneously and examined the consequences of the multiple goals (Barron & Harackiewicz, 2001; Daniels et al., 2008; Darnon, Dompnier, Gillieron, & Butera, 2010; Luo et al., 2011; Poortvliet & Darnon, 2010; Tapola & Niemivirta, 2008). For example, some studies (e.g., Barron & Harackiewicz, 2001; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz et al., 2000) examined mastery and performance approach goals and their interaction term in a multiple regression model and reported that the two types of achievement goals were independently beneficial for different measures of academic success. In general, these studies found that students adopting mastery goals were more interested in subject learning, while students

adopting performance approach goals achieved higher levels of performance. Luo et al. (2011) reported that for Singapore secondary students, the goal profile with high mastery and performance approach goals combined with low performance avoidance goals was most beneficial for learning, whereas high performance approach goals, when associated with performance avoidance goals, had some negative effects on affective outcomes. Because educational settings rarely promote only pure mastery goals, the multiple-goal perspective is important in guiding research with higher ecological validity in this area.

1.2 Classroom goal structures and achievement goals

Classroom and school environments and the various instructional and evaluation strategies associated with them shape personal goal orientations. Research has identified some dimensions of classroom practices that facilitate mastery or performance goals of individual students. For example, on the basis of the TARGET (Task, Autonomy, Recognition, Grouping, Evaluation, and Timing) taxonomy of school settings, researchers have examined the features in terms of the six dimensions that elicit mastery and performance goals (Ames, 1992a; Maehr & Midgley, 1991, 1996). For example, classroom practices enhance mastery goals if students are provided with the autonomy to decide about means and strategies for engaging in the task and participate in decision-making concerning regulations that affect their actions. In addition, an evaluation practice will facilitate mastery goals if people are evaluated privately for progress, creativity and mastery of skills, rather than task completion and comparison to others (Ames, 1992a; Maehr & Midgley, 1996).

Building on existing research, Midgley and colleagues (Midgley, 2002; Midgley et al., 1998) developed the Patterns of Adaptive Learning Survey (PALS) to assess students' perceptions of classroom goal structures. The scales of classroom goal structures are composite measures of

classroom practices that reflect mastery- or performance-oriented instructional practices. A mastery goal structure describes a learning environment that conveys to students that learning is important and all students can be successful if they work hard. A performance goal structure communicates to students that being successful means getting extrinsic rewards and demonstrating higher ability than others. It has been found that perceived classroom goal structures and personal goal orientations are correlated from weakly to highly across various studies (e.g., Anderman & Midgley, 1997; Kaplan & Maehr, 1999; Kim, Schallert, & Kim, 2010; Roeser, Midgley, & Urdan, 1996; Tapola & Niemivirta, 2008). The correlation between classroom and personal goal orientations reasonably suggests that classroom practices may affect personal achievement goals. However, the perception of classroom motivational structure has both an objective and a subjective component. It is possible that students' individual differences, such as preexisting goal orientations, contribute to the perception of classroom goal structures, which leads to the correlation between these two aspects (Church et al., 2001; Kaplan, Middleton, Urdan, & Midgley, 2002; Tapola & Niemivirta, 2008; Urdan, 2004). For example, in Anderman and Midgley (1997), the perception of English classroom motivational structure was also correlated with personal math achievement goals, and vice versa. In addition, Roeser, Midgley, and Urdan (1996) reported that students' personal goals in sixth grade predicted their perception of classroom goal structure in eighth grade. As Tapola and Niemivirta (2008) suggested that although the shared objective component of classroom motivational climate might affect students' personal goal orientations, the messages and cues embedded in the instructional practices might also be filtered through students' personal goal orientations. Therefore, more research is in need to better understand the effects of classroom goal structures on the goal orientations that students adopt in their studies.

1.3 Self-schema and achievement goals

In addition to learning environments, personal characteristics are also influential in the construction of goal orientations in a specific situation. For example, an individual's theory of intelligence is regarded as a determining factor in the construction of mastery or performance goals: the view of intelligence as malleable gives rise to mastery goal orientations and the view of intelligence as fixed gives rise to performance goal orientations (Dweck, 1986, 1999).

Similarly, it has also been posited that the adoption of achievement goals is related to the degree that ability and effort are associated with each other. When students regard ability and effort as undifferentiated, they are likely to focus on the mastery of the task; when they view ability and effort as differentiated, they are likely to focus on the demonstration of ability relative to others (Nicholls, 1984, 1990). Elliot (1999) posited that in addition to competence perception and achievement motives (e.g., achievement need and fear of failure), various self-based variables are likely to affect achievement goal orientations, such as self-esteem, self-worth contingency, and independent and interdependent self-construals.

Among these self-referenced variables, self-construal originated in cross-cultural research and has received much attention in recent years. Cross-cultural research suggests that individuals may have different views of the self in relation to others that are specific to particular cultures (Markus & Kitayama, 1991; Triandis, 1989). In general, people in Western individualistic cultures seek to maintain their independence from others by attending to the self and expressing their unique inner attributes (independent self-construal, independence, or individualism). In contrast, people in collectivistic cultures, such as in East Asian countries, tend to emphasize the relatedness to others or harmonious interdependence with each other (interdependent self-construal, interdependence, or collectivism). When psychological processes (e.g., cognition,

emotion, and motivation) implicate the self, these construals can influence the very nature of these processes, and in this way individual experiences will be attuned to the cultural emphases (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Markus & Kitayama, 1991). Over the last two decades, cross-cultural researchers have examined both the cultural differences in self-construal and how it can be used to explain other variables between or within cultures. For example, it was reported that university students in Mexico were significantly more collectivistic than their counterparts in the United States (Shkodriani & Gibbons, 1995). American graduate students was found with both higher individualism and potential creativity than their Chinese counterparts, while the latter were more collectivistic and higher-achieving (Zha, Walczyk, Griffith-Ross, & Tobacyk, 2006). In addition, Uskul, Hynie, and Lalonde (2004) reported that Turkish university students scored higher in interdependent self-construal than their Euro-Canadian counterparts and interdependence mediated the relationship between culture and self-reported actual closeness with family, friends and acquaintances.

Although self-construal is an important indicator of culture at the individual level, research findings suggest that the two types of self-views are not mutually exclusive. Both self-views exist to some extent in all societies and they may influence psychological processes depending on the situation (Oyserman & Lee, 2008; Singelis, 1994). For example, Suizzo (2007) studied the parental goals for children of parents from four ethnic American groups and found that although there is some ethnic differences, all the four groups valued dimensions of both independence and interdependence. Neff, Pititsungkarn, and Hsieh (2008) examined self-compassion in the United States, Thailand, and Taiwan and how self-compassion related to self-construal within each culture. They reported that interdependent self-construal was related to self-compassion in

Thailand, while independent self-construal was associated with self-compassion in the other two cultures.

To date, the role of culture in goal adoption is just beginning to be investigated (Dekker & Fischer, 2008). A few studies examined the relation between culture and motivation from different perspectives. For example, Kitayama et al. (1997) found that Japanese undergraduates were more likely to attend to eliminating deficiencies—a self-improving motive, while American undergraduates were more likely to focus on showing their positive attributes—a self-enhancing motive. By using a meta-analytical framework, Dekker and Fischer (2008) examined the relations between societal-level values and the trichotomous achievement goals (Elliot, 1999). They found that embeddedness, a strong emphasis on maintaining the order and prestige of a group, was associated with performance approach goals, while egalitarianism, an emphasis on taking care of others and feeling a strong commitment to the well-being of other human beings, was associated with mastery goals. By doing a cross-cultural comparison, Vedder, Kouwenhoven, and Burk (2009) reported that Dutch European students preferred the goals of individuality, belongingness and recognition more than their Curacaoan African counterparts, while the latter more frequently endorsed the goals of mastery, satisfaction, self-determination and material gain, suggesting that cultural factors affect students' goal preferences. In addition, Brutus and Greguras (2008) found that for Singapore business undergraduate students, individualism predicted both status and achievement motivations and status motivations in turn affected feedback-seeking behaviors.

Although limited studies have been carried out to examine the role of culture in the formation of achievement goals, the findings do suggest that achievement goals are rooted within

culture and that the cultural context needs to be given more consideration in academic motivation research (Dekker & Fischer, 2008; Tanaka & Yamauchi, 2004).

2 Purpose and hypotheses of this study

This study was part of a large-scale research project that examined classroom practices in Singapore secondary schools and how these practices affect students' learning. More specifically, the present study was designed to examine the role of classroom goal structure and self-construal in predicting Singapore students' achievement goal orientations in their English study. Since previous studies (e.g., Daniels et al., 2008; Elliot & Church, 1997) found that gender and competence perceptions were related to achievement goal orientations, in this study we examined the unique effects of self-construal and classroom goal structure on personal achievement goals by controlling for gender, previous English achievement, and English self-concept.

This study expands our understanding of achievement goals in several ways. First, we examined the approach and avoidance components of both mastery and performance achievement goals. By investigating the relations of classroom goal structure and self-construal to the four types of achievement goal orientations, this study provides further empirical data for the validity of these distinctions. Based on existing research, we predicted that classrooms with a mastery focus would lead to the adoption of mastery approach and avoidance goals, while classrooms with a performance emphasis would result in the adoption of performance approach and avoidance goals. However, performance classroom goal structure might also lead to mastery avoidance goals because the comparison and competition might arouse students' anxiety both about their capability and about learning new knowledge and skills.

Second, this study adds to the limited literature on the relation between culture and achievement goals. Based on previous studies, it is possible that students with relatively strong independent or interdependent self-construal will endorse different achievement goals. We predicted that students with independent self-construal might have performance goals in order to show their unique attributes, while students holding interdependent self-construal might endorse mastery goals because children in a Confucian culture tend to see ability and effort as relatively undifferentiated (Lam, Yim, & Ng, 2008; Salili & Hau, 1994). Furthermore, it is also possible that self-construal has different effects on achievement motivations in different classroom settings (Urdu, 2004). In the present study, we expected that mastery classroom structure would improve the effect of interdependent self-construal on mastery goals while performance classroom goal structure would foster the influence of independent self-construal on performance goals.

Third, this study was conducted in Singapore, a westernized Eastern Asian country with a cluster of intertwined values denoting industry and civic harmony (Tu, Hejtmanek, & Wachman, 1992). As a result of modernization, both the traditional self and the modern self are now available to most Chinese individuals (Lu, 2008). For example, it has been found that collectivism and individualism correlate positively in Singapore (Chan & Koh, 2000). However, differences exist in terms of the degree to which people are westernized, which may result in differences in how people construe their selves. Therefore, it is especially meaningful to examine whether these individuals also endorse different achievement goals in Singapore. In addition, the education environment in Singapore is very competitive, even in primary schools. In a small country with few natural resources, educational success is very important for the future success

of individuals as well as the nation. We expected that this learning environment would be likely to elicit avoidance motivation with high anxiety about success.

3 Method

3.1 Participants and procedure

The large-scale research project was conducted with a large number of students and classrooms. Secondary schools in Singapore were divided into three strata based on their prior aggregate school achievement and 10 schools were randomly selected from each stratum. Within each school, half of the Secondary 3 classes were randomly selected and totally 104 classes participated in this research.

To reduce the burden on the side of our participants, students in each class were divided into two groups, each group completing measures of a different set of variables assessed in this project. More specifically, half of the students in each class were randomly selected (Group 1) to complete a student level survey related to learning, such as motivational beliefs, learning strategies and activities, and the 21st century skills; the other half (Group 2) completed a class level survey related to classroom practices, such as instructional and assessment practices. For the present study, students' goal orientations in learning English, English self-concept, and self-construal were measured in the student level survey, and perceived goal structures in their English classrooms were assessed in the class level survey. Because different groups of students provided data at different levels, we could not examine the association of cross-level variables at the student (lower) level. However, in multilevel analysis, the two groups of students can be linked together by using common class codes. In addition, this design can reduce the potential inflation of cross-level correlations, which might result from similar item wordings, such as between measures of personal goals and classroom goal structures in the present study.

The student-level and the class-level surveys were administered online at the same time to students within each class. Students completed the surveys in their computer labs. After keying in their unique IDs, students in the same class were automatically directed to a web site for the student level or the class level survey. The response time was about 40 minutes for both surveys.

Both groups of students were asked to report their background information and their Primary School Leaving Examination (PSLE, a high-stakes examination given at the end of Grade 6) scores in English. The PSLE English scores ranged from 1 to 7, with higher scores indicating higher performance. Gender, age, and ethnicity distribution was very similar in the two groups. There were 1496 students in Group 1, and among them there were 795 boys (53.14%) and 701 girls (46.86%), with an average age of 15.09 years ($SD = .55$). Ethnic composition was 1094 Chinese (73.13%), 243 Malay (16.24%), 98 Indian (6.55%), and 61 others (4.08%). There were 1407 students in Group 2, and among them 759 boys (53.94%) and 648 girls (46.06%), with an average age of 15.07 years ($SD = .53$). Ethnic distribution was 1004 Chinese (71.36%), 254 Malay (18.05%), 93 Indian (6.61%), and 56 others (3.98%). A t test found no significant difference in the PSLE English scores ($t = -.20, p = .84$) between Group 1 ($M = 5.03, SD = 1.22$) and Group 2 ($M = 5.02, SD = 1.24$).

3.2 Measures

Personal achievement goals. Both approach and avoidance components of mastery and performance goals in learning English were measured in this study. The scales employed to measure mastery approach goals (3 items), performance approach goals (3 items), and performance avoidance goals (3 items) were adapted from the Patterns of Adaptive Learning Scale (Midgley et al., 1998; Midgley et al., 2000) and the scale assessing mastery avoidance goals (3 items) was adapted from Elliot and McGregor (2001). Mastery approach goals refer to

students' orientations to learn new things and challenging ideas. Sample items of mastery approach goals include, "An important reason I do my English work is that I like to learn new things," and "I like the work in my English class best when it challenges me to think." Mastery avoidance goals describe a striving to avoid misunderstanding or failing to learn course material. Sample items of mastery avoidance goals are, "I'm worried that I am not trying my best in my English lessons," and "I'm afraid that I may not understand the content of my English class thoroughly." The performance approach goals scale assessed students' desire to demonstrate high performance to their teachers and students in their English class. Sample items are, "I want to show my classmates in my English class that I am smart," and "I like to show my teacher that I am smarter than my classmates in my English class." The performance avoidance goals scale tapped students' orientations to avoid appearing incompetent in English in front of their classmates and teachers, such as "I do my English work because I do not want the teacher to think that I am stupid," and "It is important that my classmates in my English class do not think I am stupid." The response categories of the four scales ranged from 1 (strongly disagree) to 5 (strongly agree). The results of confirmatory factor analysis (CFA) showed a satisfactory fit of the four-factor structure: root mean square error of approximation (*RMSEA*) = .04, comparative fit index (*CFI*) = .99, the standard root mean square residual (*SRMR*) = .02, and goodness of fit index (*GFI*) = .98. The internal consistency reliabilities for mastery approach, mastery avoidance, performance approach, and performance avoidance goals were .81, .79, .86, and .78, respectively.

Classroom goal structure. Two dimensions of classroom goal structure were measured: mastery focus and performance focus. The scales assessing the two variables were adapted from the PALS (Midgley et al., 1998; Midgley et al., 2000). The scale of mastery classroom goal structure (4 items) assessed the degree to which students felt that their teacher emphasized

learning and understanding English as primary goals in the classroom. Sample items are, “My English teacher really wants us to enjoy learning new things in English,” and “My English teacher gives us time to learn new ideas.” The scale of performance classroom goal structure (4 items) assessed the degree to which students felt that their teachers emphasized that outperforming other students and showing how smart they are in English are important goals. Sample items are, “My English teacher always compares how well we are doing with other pupils,” and “My English teacher calls on smart pupils more than other pupils.” The results of CFA showed an acceptable fit of the two-factor structure: $RMSEA = .08$, $CFI = .96$, $SRMR = .07$, and $GFI = .97$. The internal consistency reliabilities for mastery and performance classroom goal structures were .87 and .74, respectively.

Self-construal. Self-construal is usually measured by using multiple dimensions with different focuses (Hardin, Leong, & Bhagwat, 2004; Oyserman, Coon, & Kemmelmeier, 2002; Shulruf, Hattie, & Dixon, 2007). For example, Oyserman et al. (2002) conducted a thorough review and content analysis of scales used in this area to clarify what individualism and collectivism refer to, and they identified seven individualism and eight collectivism components. Based on meta-analyses at regional and country levels, Oyserman et al. (2002) proposed that the most basic way of defining and assessing individualism is the extent to which personal uniqueness and independence is valued, and the most basic way of defining and assessing collectivism is the extent to which duty to in-group and group harmony is valued.

Based on this definition, self-construal was measured in this study by selecting or adapting items in existing scales. Singelis (1994) developed the Self-Construal Scale to measure independent and interdependent self-construals. Five items with relatively high loadings (over .44) on the factor of interdependent self-construal in Singelis (1994) were selected to

measure this dimension in the present study. Sample items include, “My happiness depends on the happiness of those around me,” and “It is important for me to maintain harmony with my group.” In addition, two items from Singelis (1994) with high loadings (over .5) on the factor of independent self-construal were selected and another two items from Shulruf, Hattie, and Dixon (2007) with high loadings (.60) on the factor of uniqueness were adapted to measure independent self-construal. Sample items are, “I consider myself as a unique person separate from others,” and “I see myself as a very independent person.” The response categories of the scale ranged from 1 (strongly disagree) to 5 (strongly agree). The results of CFA showed a good fit of the two-factor structure: $RMSEA = .06$, $CFI = .97$, $SRMR = .04$, and $GFI = .97$. The internal consistency reliabilities for interdependent and independent self-construals were .72 and .74, respectively.

English self-concept. Four items adapted from the Program for International Student Assessment (PISA, 2003) were used to measure students’ English self-concepts. Sample items include, “I have always believed that English is one of my best subjects,” and “I learn English quickly.” The internal consistency reliability of this scale was .86.

4 Results

We conducted two-level hierarchical linear modeling (HLM) analyses to examine the power of classroom goal structure and self-construal in predicting each of the four types of personal achievement goals. Some preliminary analyses were conducted before the multilevel analyses. First, we calculated the means of each variable at Levels 1 and 2 and examined whether there were gender differences in each variable (as shown in Table 1). By using a more stringent criterion for significance (.01) due to the large sample size, Table 1 showed that boys tended to

have higher performance approach and avoidance goals as well as higher English self-concept, and they were more likely to perceive their English classrooms to be performance-focused.

The correlations among Level 1 and Level 2 variables were calculated separately. At Level 2, mastery and performance classroom goal structures were not significantly correlated ($r = .10$, $p > .05$). The correlations among Level 1 variables are given in Table 2. The low to moderate correlations among the four types of achievement goals showed that the four goals were distinct from each other. The stronger correlation between the two types of performance goals was consistent with Luo et al. (2011) by using an earlier sample of Singapore students. In addition, the four types of goals had different correlational patterns with the other variables. Mastery avoidance goals, performance approach, and performance avoidance goals had low negative correlations with PSLE English scores. Mastery approach goals, performance approach, and performance avoidance goals were positively correlated with English self-concept, while mastery avoidance goals were negatively correlated with English self-concept. Independent and interdependent self-construals were moderately correlated with each other in the present study, while their correlations with the four types of achievement goals showed different patterns. Both independent and interdependent views of the self were related to mastery approach goals, while interdependent self-construal had a relatively stronger correlation with mastery avoidance goals, and independent self-construal had a relatively stronger correlation with performance approach goals.

The correlations between achievement goals and the Level 1 predictor variables, as well as the correlations among the predictor variables, required all the Level 1 variables to be entered in the equation in order to predict the unique effect of each type of self-construal on personal achievement goals. Before entering each variable into the models, student level variables were

standardized at the student level and classroom goal structures were standardized at the class level. We employed HLM 6.08 to conduct the multilevel linear modeling and estimated the regression coefficients by using restricted maximum likelihood estimation.

Before the full two-level models were analyzed, we examined several models to disentangle the variance explained by different predictor variables. As suggested by Raudenbush and Bryk (2002), unlike one-level hierarchical regression analyses, care should be taken when calculating the statistics of the explained variance in hierarchical linear models, especially the variance explained at Level 2 that is conditional on the Level 1 specification. We conducted 6 models in the following sequence to fully understand the variance explained by different predictors. First, the variance in the four personal achievement goals was decomposed across the two levels by analyzing the unconditional models (Model 0, like ANOVA). Model 0 was the base model for comparison with the following more complex models. Second, we added only interdependent and independent self-construals as Level 1 predictors in Model 0 (Model 1), and comparing the residual variance in Model 1 and Model 0, we obtained the total variance explained by these two variables. Third, we added only gender, PSLE English scores, and English self-concept as Level 1 predictors in Model 0 (Model 2), and comparing the residual variance in Model 2 and Model 0, we got the total variance explained by these three variables. Fourth, we added all the five Level 1 predictors in Model 0 (Model 3), and comparing the residual variance in Model 3 and Model 0, we got the variance explained by all the five Level 1 predictors. In addition, comparing Model 3 and Model 1, we obtained the unique variance explained by gender, PSLE English scores, and English self-concept, and comparing Model 3 and Model 2, we obtained the unique variance explained by interdependent and independent self-construals. To examine the variance explained by mastery and performance classroom goal structures at Level 2, first we added these two

variables as Level 2 predictors in Model 0 (Model 4), and comparing the residual variance in Model 4 and Model 0, we obtained the total variance at Level 2 explained by these two variables. Lastly, we added the two Level 2 predictors to Model 3 to get the full model (Model 5), and comparing Model 5 and Model 3, we got the Level 2 variance in the intercept explained by classroom goal structures after controlling for all the five Level 1 predictors.

Table 3 presents the variance decomposition in Model 0 and the percentage variance explained by different predictors. As shown in Table 3, over 90 percent of the variance in the four types of achievement goals was at the student level. Without other variables in the model, the total variance explained by self-construal at Level 1 was 7-15% (Model 1), and the total variance explained by classroom goal structure at Level 2 was 46-56% (Model 4). In addition, the proportion of the unique variance explained by self-construal at Level 1 (Model 3 - Model 2) and classroom goal structures at Level 2 (Model 5 - Model 3) was also remarkable. After controlling for gender, PSLE English scores and English self-concept, the percentage of variance explained by self-construal was 8%, 7%, 6%, and 5%, respectively in mastery approach, mastery avoidance, performance approach, and performance avoidance goals. After controlling for all the Level 1 predictor variables, the percentage of variance explained by classroom goal structure at Level 2 was 19%, 33%, 29%, and 25%, respectively in mastery approach, mastery avoidance, performance approach, and performance avoidance goals.

The full model (Model 5) is shown below. The student level (Level 1) variables included gender, PSLE English scores (PSLEE), English self-concept (ESC), interdependent self-construal (ITSC), and independent self-construal (IDSC). The class level (Level 2) predictors were the mastery (CMG) and performance (CPG) classroom goal structures.

Level-1 Model

$$Y_{ij} = \beta_{0j} + \beta_{1j} *(\text{GENDER}) + \beta_{2j} *(\text{PSLEE}) + \beta_{3j} *(\text{ESC}) + \beta_{4j} *(\text{ITSC}) + \beta_{5j} *(\text{IDSC}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} *(\text{CMG}) + \gamma_{02} *(\text{CPG}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} *(\text{CMG}) + \gamma_{12} *(\text{CPG}) + u_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21} *(\text{CMG}) + \gamma_{22} *(\text{CPG}) + u_{2j}$$

$$\beta_{3j} = \gamma_{30} + \gamma_{31} *(\text{CMG}) + \gamma_{32} *(\text{CPG}) + u_{3j}$$

$$\beta_{4j} = \gamma_{40} + \gamma_{41} *(\text{CMG}) + \gamma_{42} *(\text{CPG}) + u_{4j}$$

$$\beta_{5j} = \gamma_{50} + \gamma_{51} *(\text{CMG}) + \gamma_{52} *(\text{CPG}) + u_{5j}$$

The regression coefficients and their significance tests for the full model are shown in Table 4. For comparison purpose, the regression coefficients for Model 1 with only independent and interdependent self-construals as predictors, model 4 with only classroom goal structure as predictors are also reported. As can be seen in Table 4, before and after controlling other variables in the model, the patterns of regression coefficients for both self-construal and classroom goal structure were similar, with the sizes generally smaller in the full model. At Level 2, mastery classroom goal structure significantly predicted individual students' mastery approach and avoidance goals, while performance classroom goal structure significantly predicted students' mastery avoidance, performance approach, and performance avoidance goals.

At Level 1, male students were more likely to have performance approach and avoidance goals, and only in classrooms with a mastery focus, girls were more likely to have mastery approach and avoidance goals. English self-concept and previous English achievement had distinct effects on the four types of achievement goals. English self-concept positively predicted mastery approach, performance approach, and performance avoidance goals, and only negatively predicted mastery avoidance goals. As reported in Table 2, the correlations between previous

English achievement and the four achievement goals were slightly negative, though the correlation with mastery approach goals was not significant. After controlling for other variables at Level 1, previous English achievement negatively predicted all the four types of achievement goals. We suspected that the increased negative relations between previous achievement and mastery approach, performance approach and performance avoidance goals were due to the suppression effect of other variables in the same equation, such as English self-concept which was positively correlated with both previous English achievement and these three types of achievement goals.

After controlling for gender, previous English achievement, and English self-concept, interdependent self-construal significantly predicted mastery approach and avoidance goals, while independent self-construal significantly predicted performance approach, performance avoidance, and mastery approach goals. In addition, small but significant interaction effects were also found between self-construal and performance classroom goal structure. In classrooms with a performance focus, students with interdependent self-construal were more likely to endorse mastery approach, mastery avoidance and performance avoidance goals, and students with independent self-construal were more likely to pursue performance approach goals.

5 Discussion

This study aimed to examine the effects of both classroom goal structure and self-construal on Singapore students' achievement goals in their English study. In general, the findings were consistent with our expectations that both classroom goal structure and self-construal contributed to the adoption of achievement goals, and there were some interaction effects between these two variables on students' achievement goals.

5.1 Classroom goal structure and achievement goals

As expected, classrooms with a mastery goal structure promoted the adoption of mastery approach and avoidance goals, while classrooms with a performance focus fostered the adoption of performance approach and avoidance goals. This finding is generally consistent with recent studies that support the relation between the learning environment's goal structure and the goals that students adopt for academic tasks (e.g., Church et al., 2001; Kaplan & Maehr, 1999; Roeser et al., 1996; Tapola & Niemivirta, 2008). For example, Roeser et al. (1996) reported that even after controlling for students' achievement goals in sixth grade, school task and ability goal structures still significantly related to students' task and ability goals respectively in eighth grade. Church et al. (2001) reported that lecture engagement (a dimension of mastery classroom structure) was a positive predictor of mastery goal adoption and was unrelated to the adoption of performance approach or performance avoidance goals, while evaluation focus (a dimension of performance classroom structure) was a positive predictor of both performance approach and avoidance goals and was negatively related to mastery goals. Since classroom goal structure explained a large portion of the variance in personal achievement goals at the class level even after controlling for student level predictors in the present study, it is reasonable to say that classroom goal structure is a very important predictor of goal orientations of an average student in a class.

By including mastery avoidance goals in this study, we also had some new findings. Mastery avoidance goals refer to a striving to avoid misunderstanding or failing to learn course material. In the present study, students with high mastery avoidance goals had relatively low English self-concept, which is consistent with and adds to previous findings that students with mastery avoidance goals tend to show worry and anxiety (Elliot & McGregor, 2001) and low confidence in their study (Cury et al., 2006; Van Yperen, 2006). In comparison to studies in the

West (Cury et al., 2006; Elliot & McGregor, 2001; Elliot & Murayama, 2008; Van Yperen, 2006), however, Singapore students demonstrated relatively high mastery avoidance goals. This is shown by the means of the four types of goals; the mean on mastery avoidance goals was close to the mean on mastery approach goals and higher than the means on both performance approach and performance avoidance goals. In addition, we found that the mastery avoidance goals were more salient in the classrooms with either a mastery focus or a performance focus. The mastery avoidance tendency might relate to the competitive educational environment in Singapore, where due to the streaming system, students' current academic achievement determines their opportunities for further education and future success (Liem, Lau, & Nie, 2008; Luo et al., 2011). In this educational environment, students are likely to exhibit considerable concern and anxiety about educational failure. The findings are also congruent with international studies that found students in some East Asian countries achieved relatively higher scores but also demonstrated relatively higher anxiety and lower self-concept than students from Western countries (e.g., Lee, 2009; Wilkins, 2004).

5.2 Self-construal and achievement goals

Consistent with our hypothesis, in this study we found that interdependent self-construal was related to mastery approach and avoidance goals, while independent self-construal was associated with performance approach and avoidance goals. This finding was also in line with previous studies (e.g., Kitayama et al., 1997) that found that students from more collectivistic countries, such as Japan, had a tendency to improve themselves, whereas students from more individualistic countries, such as the USA, were motivated to enhance their internal attributes to become distinctive. Similar findings were reported by Heine et al. (2001) who found that compared with their American counterparts, Japanese students tended to exhibit a self-improving

pattern by persisting longer following failure than success feedback. Mastery goals, which orient students to learn challenging ideas, make efforts, and persist in the face of difficulties or to avoid misunderstanding or failing to learn well, are more concordant with the self-improving motive. In contrast, performance goals, which orient students to demonstrate their competence or to avoid appearing incompetent relative to others, are more congruent with the motive to enhance their internal attributes in order to become distinctive from others.

The relation between self-construal and achievement goals might also be explained by using the implicit theories of ability in different cultures. According to Nicholls (Nicholls, 1984, 1990), when students regard ability and effort as undifferentiated, they are likely to focus on the mastery of the task; when they view ability and effort as differentiated, they are likely to focus on the demonstration of ability relative to others. It was found that Chinese children viewed ability and effort as relatively undifferentiated (Lam et al., 2008; Salili & Hau, 1994). In other words, the Chinese children thought that the more hardworking students were always more able and vice versa. Heine et al. (2001) also reported that Japanese undergraduates viewed intelligence as more malleable with effort in comparison to their American counterparts. By examining the relation between implicit beliefs of intelligence and achievement goals of Hong Kong teacher students, Leung (2003) found that students who viewed ability as a fixed entity were more likely to adopt performance goals while students who viewed ability as incremental with effort were more likely to adopt mastery goals. Therefore, it is possible that students with an interdependent view of the self are more likely to have an incremental view of ability that increases with effort and learning, and thus tend to endorse mastery goal orientations.

In addition to the general correspondence between interdependent self-construal and mastery goals and between independent self-construal and performance goals, some specific

relationships are also noteworthy. First, independent self-construal was also associated with mastery approach goals in this study. This finding is consistent with other studies conducted in East Asian cultures. For example, it was found that for Hong Kong student teachers, collectivism had significant influence on mastery goals, whereas individualism had significant influences on both mastery and performance goals (Leung, 2003). In addition, Brutus and Greguras (2008) found that for Singapore business undergraduate students, individualism was related to both status (oriented toward outperforming others and obtaining power) and achievement motivations (oriented toward accomplishing tasks). Therefore, although students with independent self-construal are oriented to demonstrate their abilities, at the same time, they also want to master new knowledge and skills in their study.

Second, independent self-construal was a significant predictor of performance avoidance goals, but did not predict mastery avoidance goals. This implies that students with an independent view of the self are not concerned about failing to learn well, though they are concerned about appearing less competent relative to others. We argue that these two types of avoidance goals have different meanings for students with independent self-construal. Performance avoidance goals are directly related to the tendency of independent students to express themselves as unique and capable ones, because looking stupid or incompetent is a direct threat to this tendency. However, mastery avoidance goals reflect a focus on avoiding task-based or intrapersonal incompetence, and thus are not directly related to the tendency of showing themselves as unique and capable students relative to others.

Another important finding of this study is that classroom goal structure interacted with both interdependent and independent self-construals to affect students' achievement goal orientations. However, the interaction effect was relatively small and only found in classrooms with an ability

focus. Students with interdependent self-construal were more likely to endorse mastery approach and avoidance goals as well as performance avoidance goals in classrooms stressing competition and ability demonstration. In other words, although in classrooms with a comparison focus students with interdependent self-construal tended to learn hard to master new knowledge and skills, they were also more likely to have stronger performance avoidance tendencies. Consistent with the multiple goals perspective (Barron & Harackiewicz, 2001; Luo et al., 2011; Poortvliet & Darnon, 2010), a combined pursuit of learning and avoiding failure to learn and looking incompetent may be an optimal way to realize their socially oriented achievement motive as their ultimate goal (Markus & Kitayama, 1991), that is, to meet the expectations of their classroom teachers. In contrast, for students with independent self-construal, classroom ability focus only enhanced their performance approach goals. It is reasonable that classrooms with a focus on comparison and ability demonstration can increase independent students' tendency to confirm their inner traits (i.e., I am more capable) or separate themselves from others by outperforming others.

It should be noted that independent and interdependent self-construals were moderately correlated ($r = .50$) with each other in this study. This was consistent with the finding with Singapore students (Chan & Koh, 2000) and with Taiwan students (Lu, 2007, 2008), implying that collectivism and individualism coexist in the modern Confucian cultures. Therefore, although in HLM analyses we found that students with interdependent self-construal tended to have mastery approach and avoidance goals, this does not mean that these students had pure interdependent self-construal or only endorsed mastery goals. Rather, the coefficients of self-construal in predicting personal achievement goals were the unique effects of each type of self-construal after accounting for the other. An individual student might have both independent and

interdependent self-construals to some extent, and endorse multiple goals simultaneously to better adapt to the situational demands.

Many studies have been conducted to examine the antecedents of achievement goals, while most of them focus on classroom practices that elicit different goal structures (e.g., Anderman & Midgley, 1997; Church et al., 2001; Kaplan et al., 2002; Roeser et al., 1996) or on psychological variables such as motive dispositions (Elliot & Church, 1997; Elliot & McGregor, 2001). The present research extends this work by considering cultural context as another antecedent of achievement goal orientations. We found that interdependent self-construal was related to mastery approach and avoidance goals, while independent self-construal was associated with performance approach and avoidance goals as well as mastery approach goals. In addition, classroom ability structure interacted with both interdependent and independent self-construals to affect students' achievement goal orientations. These results support the position that culture plays an important role in academic motivation processes (Dekker & Fischer, 2008; Elliot, Chirkov, Kim, & Sheldon, 2001; Kitayama et al., 1997; Tanaka & Yamauchi, 2004).

The results of this study have important implications for intervention studies of achievement goals and classroom practices. The predictive utility of classroom goal structure in this study suggests that the goal structure transmitted by instructional practices in the classroom is influential on students' achievement goals. However, most of the variances in students' achievement goals were at the individual level. Therefore, it is important to consider individual level variables in order to better understand how students adopt multiple achievement goals. In addition to achievement motives, ability, and competency beliefs (Elliot, 1999; Elliot & Church, 1997), we found in this study that self-construal is another important antecedent of achievement goals. Self-construal reflects cultural norms or values gradually obtained through personal

socialization experiences, such as in the family (Kitayama et al., 1997; Markus & Kitayama, 1991). In the modernized Confucian country of Singapore, independent and interdependent self-construals might coexist with all individuals to the degree they are traditional or westernized, therefore self-construal might be particularly meaningful in Singapore to understand individual differences in students' achievement goals.

This study adds to the validity of the 2×2 framework of achievement goals. As predicted, classroom mastery goal structure and interdependent self-construal mainly predicted mastery approach and avoidance goals, while classroom ability goal structure and independent self-view mainly predicted performance approach and avoidance goals. We also found that boys tended to have performance approach and avoidance goals, while girls were likely to endorse mastery approach and avoidance goals only when the classrooms had a mastery focus. As evidence of discriminant validity for mastery avoidance goals, mastery avoidance goals were the only goal orientation that was negatively associated with English self-concept and not predicted by independent self-construal. In addition, as reported in an earlier study (Luo et al., 2011), there was a relatively strong correlation between performance approach and avoidance goals for Singapore students, implying that Singapore students are inclined to endorse performance approach and avoidance goals concurrently. This tendency warrants more research in the future. However, the two types of performance goals did show different relations with other variables in this study. For example, English self-concept was a stronger predictor of performance approach goals than performance avoidance goals. In addition, classroom ability structure only added to the power of independent self-construal in predicting performance approach goals, rather than performance avoidance goals. All these findings provide validity data for the four types of achievement goal orientations.

5.3 Limitations and future directions

In this study, rather than using students' own perceptions of classroom goal structures to predict their personal achievement goal orientations, a relatively more "objective" measure of classroom goal structure was employed, that is the class level goal perception averaged across a different but equivalent half of the students in the same class. It is important to note that theoretically, students' own perceptions of classroom goal structures are presumed to play the more important role in the goal adoption process (Ames, 1992b; Maehr & Midgley, 1991) and most research examining the relations between classroom structures and student motivation has relied on student perception data. It is possible that if we used students' own perceptions of classroom goal structure in this study to predict personal achievement goals, the predictive utility would be larger than what we found in the present study with a more "objective" measure of class goal structure. From this perspective, this design is a limitation to the present study. However, researchers have also begun to emphasize the importance of using additional sources of information about classroom structure to fully establish the link between classroom goal structure and students' achievement goal orientations, such as teacher perception data or observational data (Church et al., 2001; Ryan, Gheen, & Midgley, 1998; Urdan, 2004). The present study used a measure of classroom goal structure that was an aggregate measure from an equivalent but different group of students in the same class. This design provides solid evidence that classroom practices can be used to alter individual students' achievement goals because the measure of the classroom environment was not affected by either students' own achievement goal orientations or the potential method bias due to the similar wordings between classroom goal structure and individual achievement goal orientations. Some studies have begun to use

multiple methods to examine classroom characteristics (e.g., Patrick, Anderman, Ryan, Edelin, & Midgley, 2001; Turner et al., 2002), but more such research is necessary in the future.

In addition, although classroom goal structure and self-construal are viewed as important precursors of personal goal orientations (Elliot, 1999; Kaplan & Maehr, 2007), given the correlational nature of the present study, it is premature to conclude these are causal relations. In the future, experimental studies should be conducted to examine the changes in students' personal achievement goals by manipulating classroom goal structure or shifting self-construal by a situational prime. Furthermore, in this study, we examined the role of these two variables in the generation process of personal achievement goals in Singapore secondary students' English study. Since language and culture are intimately related, it is interesting to examine whether self-construal has the same effect on other subject domains. Studies should also be conducted to examine whether the findings in this study can be generalized to other areas of personal pursuits. For example, recently it was reported that Taiwanese students attributed failure to external factors in the areas of personal autonomous interest and to lack of effort in the areas of social expectations (Chen, Wang, Wei, Fwu, & Hwang, 2009). Self-construal might also have different effects on personal goal orientations in these two types of areas. In addition, since Singapore is a modern Confucian society, it is interesting to examine whether the same relationships between self-construal and achievement goals in this study can be found in a more individualistic or collectivistic culture.

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*Table 1**Means, Standard Deviations, and Gender Differences for Levels 1 and 2 Variables*

	<i>M (SD) total</i>	<i>M (SD) boys</i>	<i>M (SD) girls</i>	<i>Sig.</i>
Mastery approach	3.37 (0.78)	3.41(0.79)	3.32 (0.77)	.03
Mastery avoidance	3.26 (0.82)	3.25 (0.82)	3.28 (0.82)	.61
Performance approach	2.78 (0.91)	2.95 (0.90)	2.60 (0.88)	.00
Performance avoidance	2.99 (0.89)	3.07 (0.89)	2.90 (0.88)	.00
PSLE English scores	5.03 (1.22)	5.01 (1.16)	5.04 (1.28)	.65
English self-concept	3.02 (0.84)	3.11(0.84)	2.92 (0.82)	.00
Interdependent self-construal	3.66 (0.59)	3.65 (0.62)	3.68 (0.56)	.37
Independent self-construal	3.55 (0.66)	3.57 (0.66)	3.53 (0.66)	.34
Mastery classroom goal structure	3.70 (0.77)	3.70 (0.80)	3.71 (0.74)	.73
Performance classroom goal structure	2.94 (0.79)	3.09 (0.81)	2.75 (0.74)	.00

Table 2

Correlations among Achievement Goals and Predictor Variables at the Student Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Mastery approach	1	.31*	.43*	.36*	-.06	.42*	.26*	.30*
(2) Mastery avoidance		1	.28*	.37*	-.11*	-.14*	.17*	.06
(3) Performance approach			1	.69*	-.10*	.32*	.08*	.20*
(4) Performance avoidance				1	-.13*	.19*	.11*	.16*
(5) PSLE English scores					1	.21*	.13*	.17*
(6) English self-concept						1	.17*	.33*
(7) Interdependent self-construal							1	.50*
(8) Independent self-construal								1

Note. * $p < .01$

Table 3

*Variance Decomposition and Percentage Variance Explained by Variables at Each Level**($N_{Level1} = 1496$ and $N_{Level2} = 104$)*

	Mastery approach	Mastery avoidance	Performance approach	Performance avoidance
Model 0				
Variance at L1	.94	.95	.93	.93
Variance at L2	.07	.06	.07	.07
Model 1 - Model 0:				
L1 variance explained by ITSC, IDSC	15%	7%	10%	8%
Model 2 - Model 0:				
L1 variance explained by Gender, PSLEE, ESC	22%	9%	13%	7%
Model 3 - Model 0:				
L1 variance explained by Gender, PSLEE, ESC, ITSC, IDSC	30%	15%	19%	12%
Model 3 - Model 1:				
L1 variance explained by Gender, PSLEE, ESC after controlling for ITSC, IDSC	15%	9%	9%	5%
Model 3-Model 2:				
L1 variance explained by ITSC, IDSC after controlling for Gender, PSLEE, ESC	8%	7%	6%	5%
Model 4 - Model 0:				
L2 variance in intercept explained by CMG, CPG	51%	46%	56%	56%
Model 5 - Model 3:				
L2 variance in intercept explained by CMG, CPG after controlling for all L1 predictors	19%	33%	29%	25%

Note. All the percentages are calculated with reference to the variance in the null Model 0.

PSLEE = PSLE English scores, ESC = English self-concept, ITSC = interdependent self-construal, IDSC = independent self-construal, CMG = mastery classroom goal structure, and CPG = performance classroom goal structure.

Table 4

Regression Coefficients Obtained in Models 1, 4, and 5 ($N_{Level1} = 1496$ and $N_{Level2} = 104$)

	Mastery approach			Mastery avoidance			Performance approach			Performance avoidance		
	γ	<i>SE</i>	<i>P</i>	γ	<i>SE</i>	<i>P</i>	γ	<i>SE</i>	<i>P</i>	γ	<i>SE</i>	<i>P</i>
Model 1												
ITSC slope												
mean	.16	.03	.00	.19	.03	.00						
IDSC slope												
mean	.21	.04	.00				.22	.03	.00	.12	.03	.00
Model 4												
Intercept												
mean												
CMG	.18	.04	.00	.14	.03	.00						
CPG	.06	.03	.05	.08	.03	.00	.19	.03	.00	.18	.03	.00
Model 5												
Intercept												
mean												
CMG	.15	.03	.00	.12	.03	.00						
CPG				.09	.03	.00	.14	.03	.00	.15	.02	.00
Gender slope												
mean							-.14	.02	.00	-.05	.03	.04
CMG	.05	.02	.02	.06	.02	.01						
CPG												
PSLEE slope												
mean	-.15	.02	.00	-.09	.03	.00	-.16	.02	.00	-.15	.03	.00
CMG												
CPG												
ESC slope												
mean	.38	.03	.00	-.18	.03	.00	.27	.02	.00	.14	.03	.00
CMG												
CPG												
ITSC slope												
mean	.16	.03	.00	.20	.03	.00						
CMG												
CPG	.06	.03	.03	.08	.03	.00				.08	.03	.01
IDSC slope												
mean	.11	.03	.00				.13	.03	.00	.08	.03	.02
CMG												
CPG							.06	.03	.03			

Note. PSLEE = PSLE English scores, ESC = English self-concept, ITSC = interdependent self-construal, IDSC = independent self-construal, CMG = mastery classroom goal structure, and CPG = performance classroom goal structure.