Fear of Failure, 2 x 2 Achievement Goal and Self-handicapping: An Examination of the Hierarchical Model of Achievement Motivation in Physical Education

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Abstract

In this study, the hierarchical model of achievement motivation (Elliot, 1997) is used to investigate the motivational mechanism behind the relationship between fear of failure and self-handicapping adoption. A cross-sectional design was employed. The participants were 691 college students enrolled in physical education in Taiwan. Students completed the Performance Failure Appraisal Inventory (PEAI-S, Conroy, Willow, & Metzler, 2002), the Chinese 2 x 2 Achievement Goal Questionnaire for Physical Education (CAGQ-PE, Chen, 2007) and the Self-Handicapping Scale (SHS; Wu, Wang., & Lin, 2004). Structural equation modeling was conducted. Generally, the results showed that mastery avoidance and performance avoidance goals partially mediated the relationship between fear of failure and self-handicapping. The results are discussed in terms of the hierarchical model of achievement motivation, and its implications for physical education are also highlighted.

Key Words: avoidance strategy, achievement motivation, self-protection, competence.
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Introduction

In achievement settings such as physical education classes, the maladaptive behavior of self-handicapping can sometimes be observed. At times, students may claim that they are ill or may provide some unfounded excuse just before executing a challenging task. At other times, they might reduce their effort on purpose in a competitive achievement setting to mask their possible incompetence. Although self-handicapping may protect self-worth in the short term, research indicates that it has high long-term costs for the individual (Zuckerman & Tsai, 2005). Zuckerman and Tsai’s longitudinal studies found that self-handicapping led to worse health and well-being, lower competence satisfaction, lower intrinsic motivation, more frequent negative moods and symptoms, and higher self-reported use of various substances. Given the wide range of negative effects associated with self-handicapping, it behooves researchers to better investigate why self-handicapping occurs. Therefore, the main aim of current study was to investigate the motivational antecedents of self-handicapping in physical education classes.

In the current study, we have adopted the hierarchical model of achievement motivation (Elliot, 1997, 1999, 2006; Elliot & Church, 1997; Elliot, & Thrash, 1999) to account for the motivational process that triggers self-handicapping in physical education (PE). Past research suggests that PE is an ideal setting for examining the link between achievement motivation and self-handicapping among students (see Ommundsen, 2001) given that PE lessons often require students to overtly display their physical abilities. Therefore, incompetence can potentially be readily observed by others in such a setting. As such, in PE classes, students might be highly motivated to adopt self-handicapping to prevent themselves from being perceived unfavorably in public (Chen, Chen, Lin, Kee, Kuo, and Shui, 2008).
Theoretical rationale

Berglas and Jones (1978) defined self-handicapping as the action of claiming or creating obstacles to account for poor performance. An individual embraces self-handicapping strategies to protect his or her self-worth or competent image in public. Self-handicappers believe that such acts can mask the relationship between performance and evaluation should they fail to perform (Siegel, Scillitoe, & Parks-Yancy, 2005). Thus, through self-handicapping, personal self-worth can be protected. In a way, the use of self-handicapping alleviates the threat to the self in the short run (Urdan & Midgley, 2001).

According to the definition of self-handicapping, it can be argued that the major antecedent of self-handicapping is fear of failure. This is because fear of failure, defined as the dispositional tendency to avoid situations with possible negative outcomes due to the risk of feeling ashamed of failure, whether it is real or putative (Elliot & Thrash, 2004), will lead an individual to adopt a self-handicapping strategy to avoid a decrease in personal self-worth. It is logical to expect and find a positive relationship between fear of failure and self-handicapping. In fact, Elliot and Church (2003) previously reported a positive relationship between fear of failure and self-handicapping. However, for psychologists, the important issues are these: How does fear of failure influence self-handicapping, and what is the mechanism behind the negative impact of fear of failure on self-handicapping?

Based on the hierarchical model of achievement motivation (Elliot, 1997), achievement goals can be regarded as playing a crucial role in the mechanism behind the negative impact of fear of failure on self-handicapping. In the hierarchical model of achievement motivation, Elliot (1997) integrated the class motives (e.g., need for achievement and fear of failure) and the contemporary approach-avoidance achievement goal perspective. The motives in Elliot’s model represent an individual difference in affective dispositions that derives energy to drive people’s
actions in the general achievement setting. The goal provides the direction (either approach or avoidance) that complements the motives that account for the individual’s intention in a specific condition. Finally, the behavior is performed in response to the goals adopted (Fryer & Elliot, 2007). Briefly, the motive exerts its influence on the achievement-relevant outcomes through the achievement goal, and the achievement goal is expected to account for achievement-related behavior more directly than the distal motives (Conroy & Elliot, 2004). Thus, the hierarchical model describes an achievement-striving process that stems from individual differences to the goals adopted and the end states in the achievement situation. According to the hierarchical model, fear of failure is regarded as a motive, while self-handicapping represents achievement behavior, and thus, the mechanism that links fear of failure and self-handicapping is the achievement goal.

However, different kinds of achievement goals may play different roles in the relationship between fear of failure and self-handicapping. Achievement goals, which are defined as “the purposes for engaging in competence-relevant behaviour” (Moller & Elliot, 2006, p. 308), are primarily focused on how an individual’s competence is defined by differentiating mastery and performance goals. Individuals who endorse mastery goals evaluate their competence according to an absolute or intrapersonal standard. On the contrary, those who subscribe to performance goals focus on attaining a normative standard (Ames, 1992; Ames & Archer, 1988; Pintrich, 2000). Elliot and Church (1997) integrated the valence of competence into the achievement goal to represent the approach and avoidance tendencies. They proposed the trichotomous model; this model crosses the two aspects of competence, distinguishing between the mastery (approach) goal (MAp, focused on attaining intrapersonal or task-based competence), performance-approach goal (PAp, focused on attaining normative competence), and performance-avoidance goal (PAv, focused on attaining normative incompetence). Recently, Elliot and McGregor (2001) also
differentiated the mastery goal into approach and avoidance forms and proposed the mastery-avoidance goal (MAv, focused on attaining intrapersonal or task-based incompetence), forming a 2 x 2 achievement goal framework. Previous empirical research had documented that the achievement goals in the framework have different patterns of antecedents and consequences, providing support for the utilization of the 2 x 2 framework over the dichotomous and trichotomous models (for a review, see Moller & Elliot, 2006; see also Roberts, Treasure, & Conroy, 2007).

Accordingly, based on the hierarchical model, the current study aims to examine the possible links between fear of failure and self-handicapping by means of the four achievement goals. First, in order to protect self-worth, fear of failure orients individuals either to not performing worse than their peers or to not doing worse than they have in the past (Elliot & Church, 1997; Elliot & Trash, 2004). Therefore, it is likely that fear of failure would prompt an individual to adopt negative goal forms such as PAv and MAv because fear of failure orients people to negative and undesirable possibilities (Conroy & Elliot, 2004; Elliot & Church, 1997). Furthermore, some individuals might seek achievement as a result of wanting to avoid failure (Elliot & Church, 1997); hence, fear of failure is also expected to be positively related with PAp. Finally, MAp would be unrelated to fear of failure because of its purely appetitive nature. These hypothesized relationships between fear of failure and the four achievement goals have been discussed and demonstrated in several studies within the 2 x 2 achievement goal framework (e.g., Conroy, 2004; Conroy & Elliot, 2004; Conroy, Elliot, & Hofer, 2003; Elliot & McGregor, 2001).

Further, regarding the relationships between the four achievement goals and self-handicapping, we expected that the MAp and PAp would negatively associate with self-handicapping since MAp pertains to an absolute/intrapersonal competence that may reduce the need for a self-protection process. On the other hand, PAp concentrates on pursuing achievement,
which requires that an individual not do anything to potentially impede his or her performance, such as self-handicapping behaviors (Elliot, Cury, Fryer, & Huguet, 2006). Thus, we expected that self-handicapping would be triggered by avoidance of achieving normative incompetence, which is the core consideration of PAv, and that self-handicapping may serve as a channel to release the individual’s evaluation threats. These hypotheses have been supported by previous studies (Elliot et al., 2006; Midgley & Urdan, 2001; Ommundsen, 2004). However, it is difficult to make a hypothesis on the relationship between MAv and self-handicapping because MAv contains both a positive definition and a negative valence of competence. Based on the findings that self-handicapping is motivated by avoidance motivation (Elliot & Church, 2003; Rhodewalt & Vohs, 2005) and MAv is associated with avoidance of help seeking and executive help seeking (Karabenick, 2003, 2004), we predicted that MAv would be positively linked to self-handicapping. Urdan, Ryan, Anderman and Gheen (2003) indicated that these two behaviors are conceptually similar to self-handicapping.

The present study

Based on the prior work discussed above, it is interesting to examine this relationship in Taiwanese students because of the significant cultural differences between Eastern and Western cultures (McCarthy, 2005). It has been suggested that individuals from the East are more sensitive to negative self-relevant information. Socialization processes in Eastern cultures emphasize the importance of not making mistakes or not losing for establishing a positive view of the self, while Western cultures construct the positive self by doing one’s best or by striving to win (Heine, Lehman, Markus, & Kitayama, 1999). This avoidance tendency rooted in Eastern cultures renders individuals from Eastern cultures more susceptible to fear of failure (Eaton & Dembo, 1997) and to adopting avoidance goals (Elliot et al., 2001). Potential cultural differences
between Eastern and Western individuals in the attainment of a positive view of the self should be highlighted.

In addition, two forms of self-handicapping behaviors (reducing effort and making excuses) were differentiated in the current study. These two forms of self-handicapping separate into behavioral handicaps and handicaps that focus on individuals’ claims (Arkin & Baumgardner, 1985; Elliot et al, 2006; Rhodewalt, 1990; Ryska, Yin, & Boyd, 1999; Snyder & Smith, 1982). This distinction is important because an individual might not necessarily make a verbal claim of her or his reduced effort, and conversely, an individual may not act out the excuse of decreased effort that has been offered (Ryska, et al., 1999). Ryska et al. (1999) and Wang (2003, 2005) used these two forms of self-handicapping and Nicholls’ (1984, 1989) framework of goal orientation in achievement motivation to investigate the relationships between self-handicapping and goal orientation. They found that athletes with a task-involvement orientation have a negative correlation with the “reducing effort” form of self-handicapping, but a positive or zero correlation with the “making excuses” form. Their results suggest that a task-involvement orientation prevents athletes from reducing their efforts, but may lead to a greater tendency to make excuses when a self-handicapping strategy is elicited. Since Ryska et al. (1999) and Wang (2003, 2005) suggested that the two forms of self-handicapping behaviors may have different relationships with achievement orientation, we differentiated between these two forms of self-handicapping behaviors here to examine whether these two kinds of self-handicapping behaviors have different (or the same) relationships with other research variables (i.e., fear of failure and the four achievement goals).

In summary, the main purpose of this study was to examine the relationships among fear of failure, 2 x 2 achievement goals and the two kinds of self-handicapping behaviors based on the hierarchical model of achievement motivation (Elliot, 1997; Elliot & Church, 1997). It was
expected that achievement goals would mediate the relationship between motives and achievement-related outcomes (i.e., self-handicapping). Specifically, it was expected that fear of failure would positively predict PAp, PAv and MAv. In addition, MAv and PAv were expected to have positive relationships with the two self-handicapping strategies, whereas the two approach-based goals were expected to have negative relationships with both types of self-handicapping behaviors. Furthermore, because the hierarchical model of achievement motivation proposes that the 2 x 2 achievement goals cannot fully mediate the relationship between fear of failure and outcome (Fryer & Elliot, 2007), in the following analysis we also added a direct effect of fear of failure on the two self-handicapping behaviors. Figure 1 presents the hypothesized model. Structural equation modeling (SEM) was conducted to examine the model.

Method

Participants and Procedure

Six hundred ninety-one undergraduates (341 males and 350 females) from three universities in Taiwan participated in this study voluntarily. They were enrolled in introductory or intermediate level PE courses (basketball, table tennis, aerobic dance, jogging, swimming, volleyball and badminton) that were taught in a co-ed setting. PE courses are compulsory for these undergraduates, but PE grades are not included in their final grade point averages. Their ages ranged from 18 to 26 years old ($M = 20.17$, $SD = 1.30$). Self-report questionnaires were administered in a quiet classroom setting, and participants’ confidentiality and anonymity were assured. After completing the questionnaires, participants returned them directly to researchers in the envelope provided.

Instruments

Performance Failure Appraisal Inventory-Short Form.
The short form of the Performance Failure Appraisal Inventory (PEAL-S, Conroy et al., 2002) was used to assess fear of failure (e.g., When I am failing, I am afraid that I might not have enough talent). Past research suggests that PEAL-S has adequate psychometric properties (Conroy & Metzler, 2003; Conroy, Metzler, & Hofer, 2003). In the present study, items were translated into Chinese based on the standard translation and back translation process recommended by Brislin (1970). Participants were asked to rate each item on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Reliability (coefficient H) (Hancock & Mueller, 2001) of this scale was computed from standardized factor loadings based on the whole SEM results presented in Table 2. The coefficient H of this scale is 0.85 (see table 1).

**Chinese 2 x 2 Achievement Goal Questionnaire for Physical Education (CAGQ-PE)**

The 12-item CAGQ-PE (Chen, 2007) was used to assess students’ 2 x 2 achievement goals in physical education. The CAGQ-PE items were modified from Wang, Biddle and Elliot’s (2007) measurement of achievement goals in physical education (e.g., I want to learn as much as possible from Physical Education class; I just want to avoid doing poorly in Physical Education class). In a previous study, Chen translated the items into Chinese based on the standard translation and back translation process recommended by Brislin (1970) and modified the descriptions to reflect the local context and language usage. Subsequently, the CAGQ-PE was reviewed by teachers who had considerable experience in teaching PE in the universities. Chen also conducted confirmatory factor analysis for the CAGQ-PE, and his results showed that the four-factor model fit the data well. In addition, a $\chi^2$ difference test found that the four-factor model was superior to the dichotomous and trichotomous models, which further supported its factorial validity. Participants were asked to rate each item on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Reliability (coefficient H) of each subscale is
computed from the same method as for FF. The coefficient H of these four subscales ranged from 0.73 to 0.90 (see table 1).

Self-Handicapping Scale (SHS)

The 7-item Chinese SHS (Wu, Wang, & Lin, 2004) revised from Rhodewalt (1990) was used to assess two forms of self-handicapping strategies, making excuses and reducing effort, in physical education. The making excuses (ME) subscale (4 items) assesses the tendency to make excuses prior to evaluative situations (e.g., I am easily distracted by the environment, resulting in poor performance). The reducing effort (RE) subscale (3 items) taps individuals’ willingness to decrease effort (e.g., I tend to put practice off to the last minute). Participants were asked to rate each item on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Confirmatory factor analysis in Wu et al.’s study (2004) supports the two-factor model in the Chinese SHS. Reliability (coefficient H) of each subscale is computed from the same method as for FF. The coefficient H is 0.76 for ME, and 0.67 for RE (see Table 1).

Results

Descriptive and Correlation Analysis

Table 1 presents the means, standard deviations and correlations of the seven research variables. Correlation results showed that FF is positively related to MAv, PAv, ME and RE ($r = .27$ to $.40$, all $p < 0.01$). The four achievement goals were significantly related to each other. Specifically, the correlation between MAp and PAv was negative ($r = -.10$, $p < 0.05$). The correlations between the four achievement goals were positive ($r = .21$ to $.37$, all $p < 0.01$). For the self-handicapping subscale of making excuses, it was found that ME positively correlated with MAv and PAv ($r = .12$ and $.43$, $p < 0.01$). However, MAp had a significant negative correlation with ME ($r = -.25$, $p < .05$). As for reducing efforts, MAv, PAp and PAv had
significant positive correlations with RE ($r = .15$ to $.31$, $ps < 0.01$). Finally, the two kinds of self-handicapping were positively correlated ($r = .44$, $p < 0.01$).

**Structural Equation Modeling Analysis**

The research model was examined using SEM. First, the measurement model of seven constructs was examined. In this model, each factor was indicated by its items, and errors of items were uncorrelated. Variances of latent factors were set as 1 to fix their scales. The seven factors were allowed to be correlated. Although the skewness and kurtosis for items are in the range between -1 to -1, the Mardia kurtosis for multivariate normality statistics is 61.30. In order to account for the non-normality, a robust estimator with Satorra-Bentler scaled chi-square was used with Mplus (Muthén & Muthén, 2007). The Satorra-Bentler chi-squared value of this model was significant ($SB-\chi^2 = 627.125$, $df = 231$, $p < 0.05$) because of the large sample size, however, various fit indices indicated that this model is acceptable (TLI= 0.92; CFI = 0.93; RMSEA = 0.059; SRMR = 0.07). All factor loadings were significant in the model, revealing that measures of the seven constructs are appropriate.

Further, the hypothesized model displayed in Figure 1 was examined by specifying hypothesized paths based on the measurement model. In this model, FF has a direct effect on three achievement goals (MAv, PAp, and PAv) and both kinds of self-handicapping (ME and RE). All four achievement goals (MAp, MAv, PAp, and PAv) have direct effects on both kinds of self-handicapping (ME and RE). In addition, because past studies (Conroy, Elliot, & Hofer, 2003; Elliot & McGregor, 2001; Nien & Duda, 2008; Wang, Biddle, & Elliot, 2007) and the correlation analysis in the previous section suggested that the four achievement goals were related, the four achievement goals were also specified as being correlated with each other. As the three achievement goals (MAv, PAp, and PAv) were endogenous latent variables in the model, the correlations among the four achievement goals were specified by correlating their
residual variances. This model was estimated using a maximum likelihood estimator with Mplus (Muthén & Muthén, 2007) as well.

Although the Satorra-Bentler chi-squared value of this model was significant ($\text{SB-}\chi^2 = 683.18, df = 233, p < 0.05$) because of the large sample size, various fit indices indicated that this model is acceptable (TLI= 0.91; CFI = 0.92; RMSEA = 0.053; SRMR = 0.07). Estimates in the measurement part are all significant. Reliability (coefficient H) values computed from standardized factor loadings (Hancock & Mueller, 2001) of these seven constructs are 0.85 for FF, 0.87 for MAp, 0.87 for MAv, 0.90 for PAp, 0.73 for PAv, 0.76 for ME, and 0.67 for RE (see Table 1). However, in the structural part, some parameters were not significant. Specifically, the direct effect of MAp on ME and MAv on RE was insignificant. Among the correlations between the four achievement goals, PAv was not related to MAp. All other relationships were significant. Specific results of this model are presented in Table 2.

In addition, in order to empirically test the non-significant relationship between FF and Map, we added this path in the model without changing other specifications in the model. The results showed that the path from FF and Map is not significant and results on overall model fit are not changed, because adding this path did not contribute to data fit.

Mediation Effect of Achievement Goals

Mediation effects of achievement goals were tested by the indirect effects from fear of failure to ME and RE through the three types of goals (MAv, PAp and PAv) in Mplus (Muthén & Muthén, 2007). It was found that only MAv and PAv had significant mediation effects on the relationships between fear of failure and ME (unstandardized effect = 0.05, standardized effect = 0.04, $p < 0.05$ for MAv; unstandardized effect = 0.17, standardized effect = 0.13, $p < 0.01$ for PAV), and only PAv had a significant mediation effect on the relationship between fear of
failure and RE (unstandardized effect $= 0.31$, standardized effect $= 0.21$, $p < 0.01$). This finding reveals that the three types of goals have different mediation effects.

When this model was compared to the full mediation model, in which the two direct effects of fear of failure on ME and RE were dropped, a Satorra-Bentler chi-squared difference test showed that this model was different from the full mediation model ($\text{SB-}\chi^2 (2) = 38.61, p < 0.01$), suggesting that the two direct effects of fear of failure on ME and RE cannot be deleted. Hence, by model comparison, it can be concluded that effects of FF on ME and RE are not completely mediated by achievement goals.

**Discussion**

This study investigates *why* and *how* self-handicapping is triggered within the hierarchical model of achievement motivation. Generally, the results indicate that MAv and PAv partially mediate the relationship between fear of failure and self-handicapping. This finding shows fear of failure as a distal determinant of self-handicapping and achievement goals (MAv and PAv) as proximal determinants of self-handicapping, demonstrating the motivational process of self-handicapping.

In addition, some details of the results should be further addressed. First, the relations between fear of failure and MAv, PAp and PAv observed in the SEM correspond to the findings of previous studies in the academic and sports contexts (Conroy, 2004; Conroy & Elliot, 2004; Conroy, Elliot et al., 2003; Elliot & Church, 1997; Elliot & McGregor, 2001; Nien & Duda, 2008). As fear of failure drives individuals to avoid experiencing failure, in order to avoid aversive outcomes, people experiencing fear of failure are more likely to adopt goals that do not cause them to perform worse than before (MAv) or worse than their counterparts (PAv). In addition, it seems that fear of failure is also likely to motivate students to demonstrate normative competence (PAp), which helps to diminish the possibility of failure.
Second, we differentiated between two forms of self-handicapping behaviors and it was one of strengths in our study. Previous studies only relied on a single dimension, and the use of non PE-specific measurements had been raised as a weakness (Ommundsen, 2001, 2004) because a general measurement of self-handicapping may not capture the sophisticated human behavior in PE. Indeed, in the current study, although fear of failure has positive relationships with reducing efforts and making excuses, we found that the four achievement goals have different effects on the two forms of self-handicapping behaviors, suggesting that differentiating these two kinds of self-handicapping behaviors is meaningful.

The effects of the four achievement goals on the two forms of self-handicapping behaviors are somewhat different, as shown by the results of the correlation and SEM analyses. As demonstrated by the correlation analysis, both MAv and PAv have positive relationships with reducing efforts and making excuses, but only MAp has a negative relationship with making excuses, and only PAp has a positive relationship with reducing effort. Accordingly, we can find different relationships between reducing efforts and making excuses and two kinds of approach motivations. In other words, the results show that people with stronger mastery-approach motivation would not tend to make excuses, and people with stronger performance-approach motivation would tend to reduce efforts. However, in the SEM results, MAp has a negative relationship with reducing efforts and PAp shown a negative relationship with two forms of self-handicapping. In addition, the positive relationship between MAv and reducing efforts is not seen in the SEM results.

Since SEM analysis examines many variables’ relationships simultaneously, we rely on its results as the basis for our conclusions and discussion. It is reasonable to find negative effects of MAp and PAp on reducing efforts or making excuse because of their appetitive focus. Individuals who adopt MAp focus on the intrapersonal /task standard, which precludes the need
for self-presentation. Those who adopt PAp tend to accept challenges and aspire to win and thus would not trigger self-handicapping behavior that would potentially diminish their performance (Elliot et al., 2006). Regarding PAv and self-handicapping, the results indicate that PAv not only associates with reducing effort, but is also linked to making excuses. The negative focus of PAv may drive individuals to experience anxiety, evaluated threat and shame. Accordingly, self-protection strategies such as decreased practice time are purposely triggered prior to performing the task to maintain the image of competence in others’ eyes in the event of actual failure. The present findings are in line with previous studies in the academic, sport and physical education settings (Elliot et al., 2006; Midgley & Urdan, 2001; Ommundsen, 2004). Our findings also indicate that MAv positively predicts making excuses but is unrelated to reducing efforts. This may imply that MAv is more positive than PAv. As Ryska et al (1999) suggested, an excuse does not necessarily represent a real action to reduce efforts in tasks that worsen performance. Maybe making an excuse is just a strategy to attribute a failure, not a way of handicapping oneself in advance. However, it is not our position to promote the adoption of MAv, given its links with other forms of avoiding strategies (Karabenick, 2003, 2004).

Third, the mediation effects of MAv and PAv between fear of failure and self-handicapping were examined. Specifically, we found that both avoidance-based goals (MAv and PAv) mediated the relationship between fear of failure and making excuses, but only PAv mediated the relationship between fear of failure and reducing efforts. Neither of the approach-based goals was found to be mediators in this study. The present findings account for how the process of self-handicapping may occur. The results suggest that people have a desire to avoid the shame associated with failure, leading them to embrace goals of not doing things worse than before (MAv) or comparing themselves to others (PAv), no matter how the goals are defined. Furthermore, to ensure that their competent image and self-worth can be preserved, individuals
with MAv and PAv intentionally create obstacles to serve as the reasons for their failure rather than attributing their failure to their low ability.

Furthermore, model comparison indicates that the direct effects of fear of failure can not be ignored, suggesting partial mediation of the effects of MAv and PAv. Current result corresponds to the assumption that goals do not fully mediate the relationship between motives and achievement-related outcomes (Fryer & Elliot, 2007, p. 54). The hierarchical model suggests that achievement motives and goals should be separated as independent constructs in theory. However, in the real achievement setting, achievement motives intertwine with achievement goals to form a third construct, namely “goal complex,” which is a context-specific regulatory construct between motives and achievement outcomes (Elliot & Thrash, 2001, p. 148). Therefore, countless goal complexes might be in existence, such as fear of failure intertwining with a mastery avoidance goal or need for achievement intertwining with a mastery approach goal. In other words, the four types of achievement goals are not dominant mediators that result in partial mediation.

It also should be noticed that PAp did not mediate the relationship between fear of failure and self-handicapping. One possible explanation for this finding is that the current PE setting did not present a high threat for PAp since the PE grade is not taken into account in students’ grade point average. Elliot (1997) suggested that if the context presented a challenge rather than a threat, the aversive effect of PAp might not be activated and PAp would become similar to MAp (p. 156), resulting in non-significant mediation. However, this speculation should be interpreted with caution since we did not include any variable related to students’ perception of their environment. The other possible explanation relates to the fact that our SEM model examined the four different goals simultaneously. The avoidance-based goals (MAv and PAv) may account for
most of the variance in predicting students’ self-handicapping, resulting in non-significant
mediation. However, this inference also should be interpreted with caution.

Generally, the current result is consistent with previous research building on the
trichotomous and 2 x 2 achievement goal models (e.g., Cury, Da Fonseca, Moller, & Elliot, 2006;
Elliot & Church, 1997; Nien & Duda, 2008). Elliot (1997) argued that reliance only on the
abstract motives or concrete goal approach would be insufficient to account for complex real-life
human behavior. He asserted that the class motives approach was fraught with difficulties
predicting specific achievement-related outcomes and, as a consequence, would fail at explaining
the precise processes at work in specific conditions. On the other hand, the contemporary goal
approach did not address the reasons why achievement goals are adopted. Because the traditional
cognitive perspective pays attention to how the individual interprets the information rather than
why the individual interprets the information in a particular way.

The main advantage of the hierarchical model is that it integrates the strengths of class and
contemporary achievement motivation; in other words, it illustrates why people embrace specific
goals and how people approach or avoid tasks in achievement situations. The variables we
examined fit nicely into the model and precisely accounted for the motivational process that
triggers student’s self-handicapping in PE. Therefore, current study would further our
understanding of the motivational process of self-handicapping.

Limitations and future directions

Before closing, several limitations and implication must be addressed. Although we used
the SEM approach to estimate the proposed model, the data in the study are cross-sectional in
nature and causal relations cannot be drawn. The longitudinal approach is preferred in order to
ascertain the causal pattern and to further clarify the chronic effects of mastery avoidance and
performance approach goals on achievement-related outcomes. Second, the participants were all
college students. It is questionable whether the findings can be generalized to different age
groups. Recent research suggests that dividing achievement goals into approach and avoidance
forms may be difficult in individuals between 9-14 years old (Cumming, Smith, Smoll, Standage,
& Grossbard, 2008). Future research should validate the hierarchical model of achievement
motivation in diverse samples. Finally, as our research interest is in avoidance motivation, we
did not include the approach motives in this study. Future studies based on the hierarchical
model of achievement motivation can explore the other possible antecedents proposed by Elliot
(1999).

Implications and conclusions

In the current study, the question of why self-handicapping occurs in students’ learning
process during physical education is investigated. We believe that the integrative model can help
educators develop effective interventions to reduce students’ self-handicapping, especially since
we found that the mid-level achievement goals (MAv and PAv) mediate the relationships
between fear of failure and self-handicapping. The findings suggest that PAv should be
considered as the worst self-regulated goal. It is believed that using multiple indices for
evaluating students’ performance would be more beneficial than the adoption of a single
standard (Midgley, Kaplan, & Middleton, 2001; Pintrich, Conley, & Kempler, 2003). As fear of
failure focuses on the anticipated negative affect resulting from failure, it is suggested that
teachers use multiple indices to offer more opportunities for students to attain success. In
addition, teachers should encourage students to embrace a multiple goals perspective in which
doing one’s best and outperforming others are not in conflict with each other. Midgley and
Urdan (2001) and Ommundsen (2003) found that students who embrace both mastery (approach)
and performance approach goals have the lowest self-handicapping scores.
In conclusion, this study discusses why students adopt self-handicapping behaviors in physical education. We believe that successfully negotiating the different meanings of achievement goals, particularly for the approach-based goals, could reduce self-handicapping behaviors and encourage students to explore, challenge, and further extend their potential.
References


Author Note

A full item correlations matrix for the SEM analysis is available upon request.
Table 1

**Descriptive statistics of research variables.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>.27**</td>
<td>.25**</td>
<td>(.87)</td>
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<td>(.90)</td>
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<td>-.10</td>
<td>.30**</td>
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<td>(.73)</td>
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<td>.33**</td>
<td>-.25**</td>
<td>.12**</td>
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<td>(.76)</td>
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<td>1.00</td>
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<td>.44**</td>
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* p < .05, ** p < .01.

Note. Diagonal elements in correlation matrix are coefficient H of variables.

FF: fear of failure; MAp: mastery-approach goals; MAv: mastery-avoidance goals; PAp: performance-approach goals; PAv: performance-avoidance goals; ME: making excuses; RE: reducing efforts
Table 2. Estimates of SEM model.

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<th>MAv</th>
<th>PAp</th>
<th>PAv</th>
<th>ME</th>
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Note. Except values denoted by “a”, all estimates were significant at $p < .05$. Estimates in the structural part between MAp, MAv, PAp, and PAv are correlations among the four achievement goals. FF: fear of failure; MAp: mastery-approach goals; MAv: mastery-avoidance goals; PAp: performance-approach goals; PAv: performance-avoidance goals; ME: making excuses; RE: reducing efforts.
Figure Captions

Figure 1. Hypothesized model of current study
Note: Dotted line indicates the negative paths.

FF: fear of failure; MAp: mastery-approach goals; MAV: mastery-avoidance goals; PAp: performance-approach goals; PAv: performance-avoidance goals; ME: making excuses; RE: reducing efforts

Figure 2. Structural diagram of the hypothesized model
Note. Only significant paths are presented, and the measurement part was omitted for simplicity.