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An Examination of Academic Burnout Versus Work Engagement Among Taiwanese Adolescents

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ABSTRACT. The author attempted to examine how Taiwanese junior high school students' perfectionistic tendencies and achievement goals were related to their academic burnout versus work engagement, and to determine differences in the indicators of burnout versus engagement among students with different subtypes of perfectionism. A total of 456 eighth-grade Taiwanese students completed a self-reported survey assessing their perfectionistic tendencies, achievement goals, academic burnout, and work engagement. Results of this study indicated that perfectionism along with achievement goals emerged as statistically significant predictors of Taiwanese students' burnout and work engagement. Additionally, the quality of adolescents' engagement varied as a function of perfectionistic tendencies. Adaptive perfectionists displayed the healthiest pattern of engagement in schoolwork. Implications for educational practices and future research are discussed.

Keywords: academic burnout, achievement goals, perfectionism, work engagement

Academic issues have been found to be a primary concern of adolescents (Lee et al., 2010). In Asian societies, the pressures to perform well in schoolwork are even more intense due to cultural values (Huan, Yeo, Ang, & Chong, 2006; Isralowitz & Hong, 1990; Lee et al., 2010). For example, academic achievement is viewed by many Taiwanese as the main way of moving up along the social ladder. Competitiveness is encouraged and reinforced by such social institutions as family and schools (Bond, 1992; Cheng, 1994). As a result, examinations are often utilized to elicit and measure students' performance. The pursuit of examination success has turned classroom into a setting mainly focused on the preparation for examinations (Biggs, 1994).

According to Taiwanese educational system, upon graduation from junior high school (Grades 7–9), students are required to take the joint entrance examination for senior high school (Grades 10–12). To get into high-ranking schools, the priority goal for Taiwanese junior high school students is to obtain satisfactory scores on the entrance examination. These students would usually study long hours and enroll in private after-school classes (i.e., cram schools) intended

to supplement their regular education if they strive to enter elite schools. Such practices, needless to say, may cause tremendous stress for these Taiwanese youngsters. In fact, a nationwide survey conducted by the Taiwan Minister of Interior (2006) indicated that 76.31% of Taiwanese adolescents experienced stress stemming from academic problems. There exists ample evidence that stress associated with excessive academic pressures may lead to mental health issues (Misara & McKean, 2000; Shek, 1995). In the highly stressful learning context described previously, Taiwanese adolescent students are thought to be susceptible to academic burnout. In the present study I thus aimed to investigate this very issue in the Taiwanese junior high school context in the hope that it would offer valuable insights into student burnout.

Research on burnout was initially focused on the role of work characteristics (Halbesleben & Buckley, 2004; Schaufeli & Buunk, 2003). The most widely adopted definition comes from a multidimensional theory of burnout proposed by Maslach (1982, 1998). In Maslach's model, job burnout is conceptualized as a psychological syndrome in response to chronic stressors on the job. The three core dimensions of this response are emotional exhaustion, feelings of cynicism, and reduced efficacy. Emotional exhaustion refers to feelings of being overextended and depleted of emotional resources. Cynicism refers to a negative, callous, or excessively detached response to various aspects of the job. Reduced efficacy refers to feelings of incompetence and a lack achievement at work. This multidimensional perspective continues to be the predominant one that influences subsequent research (Maslach, Schaufeli, & Leiter, 2001). Burnout was found to be associated with lower motivation and satisfaction with work and increased risk of health impairments, social conflicts, lower efficiency, and various personal dysfunctions including physical exhaustion, insomnia,

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and increased drug and alcohol use (Maslach & Schaufeli, 1993; Maslach, Jackson, & Leiter, 1997).

It has been shown that burnout is also experienced by students (Balogun, Helgemoe, Pellegrini, & Hoerberlein, 1996; Gan & Shang, 2007; Gold & Michael, 1985; Zhang, Gan, & Cham, 2007). Academic burnout refers to a psychological syndrome that occurs due to chronic academic stress and course loads, manifested as an emotional exhaustion because of study demands, a cynical and detached attitude toward schoolwork, and a reduced efficacy as a student (Gan & Shang, 2007; Zhang et al., 2007). The vast majority of research on academic burnout has been conducted in the context of college students (Jacobs & Dodd, 2003). Little is known about burnout among adolescent students.

Adolescence is a period characterized by a complex set of developmental tasks or demands that move the individual from childhood to young adulthood. The developmental tasks associated with adolescence pose a unique set of challenges and stressors including managing the physiological changes of puberty, integrating increased cognitive capacity with life experience, achieving expectations of increasing independence from family, developing appropriate social roles with peers, completing academic requirements, and choosing and planning for an occupation (Garmezy, 1981). Adolescents are dealing with a variety of demands simultaneously. Despite their expanding cognitive capacities (from concrete to formal operations), adolescents' coping responses to these demands are not always adaptive and effective. Because the youngster is confronted with many life stressors for the first time, he or she may not yet develop a repertoire of coping skills from which to draw (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Patterson & McCubbin, 1987). Given that academic pressures have been shown to constitute a major source of stress during this period of life (Adwere-Boamah & Curtis, 1993; Kohn & Milrose, 1993), adolescent students, who are already in a vulnerable developmental stage, are expected to be at increased risk for academic burnout. This line of research certainly warrants further exploration. In the present study I hence attempted to address the paucity of literature in this area by examining factors related to junior high school students' academic burnout in the Taiwanese classroom context.

Perfectionism and Academic Burnout

Burnout was thought to be more likely to occur in perfectionism (Freudenberger, 1974). Perfectionistic individuals are inclined to be excessively demanding in their performance expectations. The constant self-criticism arising from failures to live up to their previously set high standards can precipitate guilt, shame, and worthlessness, which may result in greater fatigue (Blatt, 1995; Magnusson, Nias, & White, 1996). Such a personality disposition was therefore considered a potential antecedent of burnout. Nevertheless, recently, theorists and researchers have begun

to distinguish between maladaptive and adaptive perfectionism based on cumulative evidence (Bieling, Israeli, Smith, & Antony, 2003; Enns, Cox, & Clara, 2002; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Adaptive perfectionism involves setting high personal standards and striving for success while retaining the ability to be satisfied with performance. In contrast, maladaptive perfectionism is characterized by excessive rigidity in expectations, feeling compelled to reach for goals, the inability to take pleasure in performance, and concern over errors (Enns et al., 2002). Whereas maladaptive perfectionism was found to be positively related to psychological dysfunctions, adaptive perfectionism tended to be positively correlated with healthy adjustment (Stoeber, Harris, & Moon, 2007).

Built on the conceptualization of perfectionism as a multidimensional construct with adaptive and maladaptive aspects, Frost, Marten, Lahart, and Rosenblate (1990) developed a validated and widely used measure of perfectionism termed the Multidimensional Perfectionism Scale (MPS). These researchers identified five dimensions contributing to total perfectionism. The first dimension has been described as the central feature of perfectionism, namely, the setting of personal standards of performance. Another major dimension is concern over making mistakes. This dimension assesses individuals' tendencies to equate mistakes with failure and to believe that failure leads to the loss of respect of others (Kawamura, Frost, & Harmatz, 2002). The third component is a tendency to doubt the quality of performance. It measures the extent of an individual's confidence in his or her ability to accomplish tasks. The fourth and fifth dimensions assess the theorized root of perfectionism, high parental expectations, and parental criticism. In addition to these five dimensions, a tendency to be organized has often been associated with perfectionism (Frost et al., 1993). Factor analyses performed in previous studies (Bieling, Israeli, & Antony, 2004; Dunkley, Blankstein, Masheb, & Grilo, 2006; Frost et al., 1993) consistently yielded two higher order latent factors sustaining the differentiation between adaptive versus maladaptive perfectionism. Adaptive perfectionism includes scales measuring personal standards and organization, whereas scales measuring concern over mistakes, doubts about actions, and parental criticism cluster together to form a factor reflecting the maladaptive aspect of perfectionism.

Slade and Owens's (1998) dual-process model of perfectionism suggests that adaptive perfectionism is associated with hope of success, whereas maladaptive perfectionism is undergirded by fear of failure. Maladaptive perfectionists tend to define self-worth by others' evaluation of their performance. A preoccupation with self-validation and the evaluative judgment of others may, to a large extent, influence the onset and perpetuation of chronic fatigue syndrome (White & Schweitzer, 2000). Presumably, maladaptive perfectionistic tendencies may lead to burnout experiences. Yet, the effects of adaptive perfectionism on academic burnout remain to be determined. Would the motivation to approach success that underlies adaptive perfectionism help alleviate

burnout among adolescent students, just as the other beneficial effects of this positive personality orientation well documented elsewhere (Bieling et al., 2004; Zhang et al., 2007)? Moreover, for those who espouse adaptive and maladaptive perfectionism, how would the combined dispositions be related to their burnout experiences? These clearly are intriguing questions that deserve greater attention.

Achievement Goals and Burnout

In addition to perfectionistic tendencies, students' achievement goals constitute another factor that may affect their burnout experiences. Over the past several decades, achievement goal theory has emerged as a dominant theoretical perspective on students' motivation in school (Anderman & Wolters, 2006; Elliot, 2005). *Achievement goal* refers to a cognitive representation of a competence-based possibility that a person seeks to attain (Elliot, 1999). Achievement goal theorists differentiate achievement goals on two dimensions: according to how competence is defined and according to how competence is valenced. Conventionally, competence may be defined according to whether an individual has fully mastered the task at hand or performs better than others (i.e., the mastery–performance distinction). In terms of how competence is valenced, an achievement goal may focus the individual on attaining a positive, desirable possibility (an approach goal) or avoiding a negative, undesirable possibility (an avoidance goal).

Combining the definition and valence dimensions results in a 2×2 crossing of the performance–mastery and approach–avoidance distinctions that may account for the broad spectrum of competence-based strivings (Elliot, 2005). Mastery-approach goals motivate individuals to increase their competence or achieve task mastery. Mastery-avoidance goals represent strivings of an individual to avoid losing skills and abilities or a lack of task mastery. Performance-approach goals focus students on demonstrating their ability relative to others or proving their self-worth. Finally, performance-avoidance goals lead students to avoid appearing incompetent or less able than others. Each goal type has been linked to a distinct predictive profile. For example, mastery goals have been associated with a range of positive processes and outcomes, including absorption in study material, persistence while studying, deep processing of information, and long-term retention of information. Performance-approach goals tend to be associated with such positive outcomes as persistence, positive affect, and grades (Elliot, 1999; Harackiewicz, Barron, Tauer, & Elliot, 2002). By contrast, performance-avoidance goals produce worry and distraction that result in procrastination, low absorption during task engagement, and poor retention of information (Elliot & Church, 1997; Elliot & McGregor, 2001). In light of these previous findings, it was expected that achievement goals would help explain the different quality of engagement in schoolwork that underpins systematic variability in academic burnout among adolescents.

When pursuing mastery goals, students are concerned with learning and improvement. Achievement is considered controllable and in self-referenced terms. In the face of obstacles or difficult challenges, these students tend to put forth the effort and persevere. Mastery goal-oriented students' achievement strivings are also flexible. They are able to adjust their patterns of achievement behavior to maintain an appropriate level of challenge. In addition, as students become immersed in tasks emphasizing personal growth and development rather than self-validation, they feel little need to protect self-worth (Kaplan & Maehr, 2007). Students who adopt performance-approach goals are inclined to perceive that ability will be demonstrated. The self-enhancing perception was also presumed to foster adaptive achievement strivings (Duda & Hall, 2001; Roberts, 2001). The previous characteristics held by students espousing mastery or performance-approach goals are likely to protect them from academic burnout. Those who adopt performance-avoidance goals, however, tend to perceive that the likelihood of demonstrating ability is brought into question. These students frequently ruminate about whether they possess the necessary resources to validate themselves. The rumination provokes anxiety over the prospect of experiencing undesirable outcomes (Hall, Kerr, Kozub, & Finnie, 2007). In turn, the elicited anxiety may bring about academic burnout.

Work Engagement

Recently, burnout research has been supplemented and enlarged by its opposite: engagement. The shift toward its positive antipode echoes an emerging trend toward a positive psychology (Maslach et al., 2001). Instead of focusing on weaknesses and malfunctioning, this new perspective pays more attention to the study of human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). Schaufeli, Martinez, et al. (2002) defined engagement as persistent, positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication, and absorption. *Vigor* refers to high levels of energy and resilience, the individual's willingness and ability to invest effort in work, and persistence in the face of difficulties. *Dedication* refers to an individual's strong involvement in work, accompanied by a sense of significance, enthusiasm, pride, and inspiration. Finally, *absorption* refers to an individual's pleasant state of total immersion in work, which is characterized by being unable to detach from the job. Student burnout can be considered to be an erosion of work engagement (Maslach & Leiter, 1997).

To obtain a comprehensive understanding of mechanisms shaping Taiwanese adolescents' different patterns of engagement, the present research was intended to identify antecedents of students' academic burnout together with work engagement on the bases of multidimensional models of burnout (Maslach, 1982, 1998) and engagement (Schaufeli, Martinez, et al., 2002). The present research focused on such individual factors as perfectionistic dispositions and achievement goals and aimed to determine how differences

in these variables of interest underlie different levels of academic burnout and work engagement. In addition, previous studies have shown that girls attribute more importance to academic success than do boys (Berndt & Miller, 1990; Murberg & Bru, 2004). Further, girls have been found to experience higher levels of stress (Ge, Lorenz, Conger, Elder, & Simons, 1994; Jose & Ratcliffe, 2004). It seems that girls are more likely to fear academic failure and worry about not meeting high achievement standards than are boys. These tendencies may bring forth higher levels of academic burnout in girls (Kiuru, Annola, Nurmi, Leskinen, & Salmela-Aro, 2008). To test this assumption, gender was also included as one antecedent of academic burnout versus engagement.

In Maslach's model, work engagement is referred to as positive antithesis of burnout (Maslach et al., 2001). For cross-validation, it would be informative to see whether antecedents of engagement are similar—despite cultural differences—to those of burnout, except that the direction of the relationship is reversed. If so, the cross-cultural validity of the notion that burnout and engagement are antipodes of each other can be established. Specifically, this study was devised to test the following hypotheses: (a) students' gender, perfectionistic tendencies, and achievement goals would statistically significantly predict their experienced academic burnout; (b) students' gender, perfectionistic tendencies, and achievement goals would statistically significantly predict their work engagement; and (c) students' reported levels of academic burnout and work engagement would statistically differ according to their perfectionistic tendencies.

Method

Participants

The participants included 456 eighth-grade Taiwanese students from 14 classes in three junior high schools. Participants were drawn using a cluster-sampling procedure. A list of all the school districts in the northern part of Taiwan was made. From that list, a sample of school districts was randomly drawn. For the selected school districts, a list of junior high schools was made. From the list, three schools were randomly selected. Finally, from the selected schools, 14 eighth-grade classes were randomly selected. The students in these classes (16% of the total population across the three schools) were the participants in the present study. All of the school principals granted initial consent for data to be collected in their schools. The 247 boys (54%) and 209 girls (46%) ranged in age from 12 years, 4 months to 14 years, 7 months (M age = 13 years, 7 months, SD = 3.7 months). The school districts were primarily middle class in terms of socioeconomic status. Specifically, 65% of the participants were middle class, 20% of the participants were lower class, and 15% of the participants were upper middle class. All of the participants were Taiwanese. Guidelines for the proper treatment of human subjects were followed. All participants had parental consent to take part in the study.

Procedure

The data were collected at the beginning of the year in Grade 8 (September). Students were required to fill out a survey (described in detail subsequently) during regular class time. There were two research assistants in each class for the data collection. In total, four different assistants were used. They were impartial assistants selected from upper year graduate students. All assistants were provided with the test administering protocol and instructed to abide to the protocol during the period of data collection. In doing so, treatment fidelity was maintained. Because the data employed in the present study were part of a longitudinal research project on changes in academic burnout among Taiwanese adolescents over time, the data were not anonymous on collection. The assistants assured students of the confidentiality of their self-reports and encouraged them to respond to the items as accurately as possible. When students filled out the survey, the assistants walked around to check skipped items to make sure if the participants accidentally forgot to respond. Students were told that it was perfectly fine to skip questions they were unwilling to answer.

Measures

Participants were instructed to respond to all items on 5-point Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A Chinese version of this self-report survey was employed. All measures utilized in the present study (i.e., the MPS, the Achievement Goals Questionnaire [Elliot & McGregor, 2001; Pintrich, 2000], the Maslach Burnout Inventory—Student Survey [MBI-SS; Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002], and the Utrecht Work Engagement Scale—Student [UWES-S; Schaufeli, Salanova, González-Romá, & Bakker, 2002]) were translated into Chinese and then back-translated into English. To ensure adequate translation, guidelines of the International Test Commission (Hambleton, 1994) were followed. Specifically, the translation process took full account of linguistic and cultural differences among Taiwanese adolescents. Participants' familiarity with item format, item content, and test procedures was ensured by checking with two Taiwanese junior high students during translation. Also, appropriate statistical techniques were selected to establish the equivalence between the different language versions of the measure. Information on the reliability and validity of the adapted versions is detailed subsequently.

Perfectionism. Students' perfectionistic tendencies were assessed by the scale adapted from the MPS (Frost et al., 1990). This scale measures perfectionism across six dimensions. For the present investigation, four of the original six subscales were used including Personal Standards (e.g., "I set higher goals than most people"; 5 items; Cronbach's α = .76), Organization (e.g., "I try to be an organized person"; 5 items; Cronbach's α = .85), Concern over Mistakes (e.g., "People will probably think less of me if I make a mistake";

7 items; Cronbach's $\alpha = .78$), and Doubts About Actions (e.g., "I usually have doubts about the simple everyday things I do"; 3 items; Cronbach's $\alpha = .60$). The remaining two subscales of the MPS (Parental Expectations and Parental Criticism) were not used. These two scales measure aspects of an individual's experience with his or her parents. Because the present study was intended to investigate perfectionistic expectations an individual has for him- or herself, scales measuring parental expectations and criticism were not considered central to the aspect of perfectionism under investigation.

Next, according to Frost et al.'s (1993) study on adaptive versus maladaptive perfectionism, the Personal Standards and Organization subscales were combined to create the Adaptive Perfectionism measure ($r = .66, p < .001$; Cronbach's $\alpha = .87$). Also, scores for Concern over Mistakes and Doubts About Actions were averaged to form a Maladaptive Perfectionism composite ($r = .46, p < .001$; Cronbach's $\alpha = .80$). To examine the internal structure of these two composite scales, confirmatory factor analyses (CFA) were completed using LISREL 8.52 (Jöreskog & Sörbom, 2002). Maximum likelihood was used as the estimation method (Hoyle & Panter, 1995). In the models tested, items from each composite scale (i.e., adaptive vs. maladaptive perfectionism) were hypothesized to load only onto their respective latent variables.

Results suggested that in terms of adaptive perfectionism, the model represented an adequate fit to the data, $\chi^2(30, N = 456) = 99.46, p < .01, \chi^2/N = 0.22$, root mean square error of approximation (RMSEA) = .07, goodness of fit index (GFI) = .96, normed fit index (NFI) = .97, nonnormed fit index (NNFI) = .97, comparative fit index (CFI) = .98, incremental fit index (IFI) = .98, relative fit index (RFI) = .96. Although the value of RMSEA was greater than .05, a number of researchers have suggested that values in the range of .05 to .08 indicate reasonable fit (Browne & Cudeck, 1993; McDonald & Ho, 2002). Further, the χ^2/N ratio was less than 5.0, showing a good fit. In addition, any model with a fit index greater than .90 was considered acceptable (Hu & Bentler, 1999). The model of maladaptive perfectionism also provided a good fit to the data, $\chi^2(31, N = 456) = 58.62, p < .05, \chi^2/N = 0.13$, RMSEA = .04, GFI = .97, NFI = .97, NNFI = .98, CFI = .99, IFI = .99, RFI = .96.

Achievement goals. The questionnaire assessing adolescents' achievement goal orientations was developed based on the work of Elliot and McGregor (2001) and Pintrich (2000). This questionnaire is composed of four scales for each type of achievement goals. Four scores representing Mastery-Approach (e.g., "I want to learn as much as possible from this class"; 6 items; Cronbach's $\alpha = .86$), Mastery-Avoidance (e.g., "It is important for me to avoid losing what I have learned from this class"; 5 items; Cronbach's $\alpha = .84$), Performance-Approach (e.g., "It is important for me to do well compared to others in this class"; 6 items; Cronbach's $\alpha = .84$), and Performance-Avoidance goals (e.g., "I

just want to avoid doing poorly in this class compared with others"; 5 items; Cronbach's $\alpha = .70$) for each student were created accordingly. To evaluate the assumption that these four types of goal orientations represented different underlying constructs, a CFA was completed. In the model tested, items from each scale were hypothesized to load only onto their respective latent variables. Results suggested that this model represented an adequate fit to the data, $\chi^2(198, N = 456) = 610.82, p < .01, \chi^2/N = 1.34$, RMSEA = .07, GFI = .90, NFI = .97, NNFI = .97, CFI = .98, IFI = .98, RFI = .96.

Academic burnout. Students' academic burnout was assessed by the scale adapted from the MBI-SS (Schaufeli, Martinez, et al., 2002). The MBI-SS consists of 15 items that constitute three scales: Exhaustion (e.g., "I feel emotionally drained by my studies"; 5 items; Cronbach's $\alpha = .84$), Cynicism (e.g., "I doubt the significance of my studies"; 4 items; Cronbach's $\alpha = .82$) and Lack of Efficacy (e.g., "I can effectively solve the problems that arise in my studies"; 6 items; Cronbach's $\alpha = .76$). The items measuring efficacy were reverse scored. A CFA was performed to provide information on the internal structure of the scale. In the model tested, items from each subscale were hypothesized to load only onto their respective latent variables. Results indicated that this model represented a good fit for the proposed structure of the scale, $\chi^2(85, N = 456) = 205.15, p < .01, \chi^2/N = 0.45$, RMSEA = .05, GFI = .94, NFI = .97, NNFI = .98, CFI = .98, IFI = .98, RFI = .96.

Work engagement. Students' engagement in schoolwork was assessed by the questionnaire adapted from the UWES-S (Schaufeli, Salanova, et al., 2002). This scale was constructed to measure the three underlying dimensions of work engagement: Vigor (e.g., "When studying I feel strong and vigorous"; 4 items; Cronbach's $\alpha = .76$), Dedication (e.g., "I am enthusiastic about my studies"; 5 items; Cronbach's $\alpha = .85$), and Absorption (e.g., "I can get carried away by my studies"; 4 items; Cronbach's $\alpha = .73$). To test the internal structure of the scale, items from each subscale were hypothesized to load only onto their respective latent variables in the CFA model. Results showed that this model provided a good fit to the data, $\chi^2(61, N = 456) = 128.92, p < .01, \chi^2/N = 0.28$, RMSEA = .05, GFI = .96, NFI = .98, NNFI = .99, CFI = .99, IFI = .99, RFI = .98.

Results

Regression Analyses

Descriptive information and correlations for study variables are shown in Table 1. Results from regression analyses are presented first for outcomes regarding academic burnout,

TABLE 1. Descriptive Statistics and Correlations for Study Variables (N = 456)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Personal standards	–													
2. Organization	.66**	–												
3. Concern over mistakes	.33**	.08	–											
4. Doubts about actions	.37**	.22**	.46**	–										
5. Mastery-approach goals	.66**	.64**	.16**	.25**	–									
6. Mastery-avoidance goals	.51**	.39**	.37**	.39**	.57**	–								
7. Performance-approach goals	.70**	.56**	.39**	.36**	.63**	.59**	–							
8. Performance-avoidance goals	.57**	.42**	.54**	.42**	.53**	.74**	.72**	–						
9. Exhaustion	–.29**	–.34**	.20**	.16**	–.41**	–.09*	–.22**	–.01	–					
10. Cynicism	–.29**	–.35**	.21**	.13**	–.46**	–.13**	–.24**	–.06	.76**	–				
11. Lack of efficacy	–.52**	–.62**	.09*	–.06	–.64**	–.28**	–.44**	–.25**	.44**	.49**	–			
12. Vigor	.48**	.57**	–.07	–.01	.62**	.28**	.44**	.26**	–.61**	–.57**	–.67**	–		
13. Dedication	.54**	.57**	–.05	.05	.69**	.34**	.48**	.27**	–.58**	–.63**	–.73**	.81**	–	
14. Absorption	.54**	.53**	.06	.13**	.65**	.37**	.47**	.35**	–.51**	–.53**	–.59**	.72**	.76**	–
M	3.14	3.48	2.49	2.99	3.47	3.23	3.21	3.06	2.90	2.55	2.40	2.87	3.07	2.91
SD	0.83	0.87	0.86	0.80	0.91	0.97	0.87	0.81	0.92	0.97	0.71	0.88	0.87	0.89

*p < .05. **p < .01.

and then for work engagement. In the preliminary analysis, gender was entered first in regression models. It turned out that gender failed to predict any outcome variable of interest. Therefore, gender was not included as a predicting variable in the present study. Across regression analyses, perfectionistic tendencies were given higher priority of entry because this set of predictors was presumed to be causally prior to achievement goals (Elliot & Thrash, 2001; Tabachnick & Fidell, 2007). The alpha level used to determine the significance of all of these analyses was set at .01. This more conservative alpha level was selected to reduce the possibil-

ity of making a Type I error arising from completing a series of analyses with related outcomes (Wolters, 2004).

Hierarchical Regressions Predicting Academic Burnout

Exhaustion. Results of hierarchical regressions predicting students' academic burnout are displayed in Table 2. Students' adaptive and maladaptive perfectionistic tendencies were entered in the first regression model and accounted for a statistically significant amount of the variance (24%) in exhaustion, $F(4, 451) = 34.72, p < .001$. Personal

TABLE 2. Summary of Hierarchical Regression Analyses Predicting Academic Burnout (N = 456)

Variable	Exhaustion			Cynicism			Lack of efficacy		
	β	t	ΔR^2	β	t	ΔR^2	β	t	ΔR^2
Step 1			.24			.23			.46
Personal standards	–.31***	–5.13		–.29***	–4.85		–.31***	–6.21	
Organization	–.20***	–3.64		–.22***	–3.91		–.45***	–9.47	
Concern over mistakes	.22***	4.65		.24***	5.02		.21***	5.19	
Doubts about actions	.21***	4.43		.18***	3.69		.05	1.34	
Step 2			.08			.10			.08
Personal standards	–.16	–2.50		–.10	–1.56		–.13	–2.44	
Organization	–.08	–1.46		–.06	–1.12		–.30***	–6.40	
Concern over mistakes	.15	2.88		.19***	3.83		.18***	4.21	
Doubts about actions	.21***	4.45		.18***	3.92		.06	1.45	
Mastery-approach goals	–.36***	–5.92		–.44***	–7.36		–.40***	–7.93	
Mastery-avoidance goals	–.02	–0.32		.01	0.01		.03	0.50	
Performance-approach goals	–.13	–1.99		–.11	–1.61		–.12	–2.15	
Performance-avoidance goals	.26***	3.52		.12	2.16		.11	1.88	

p < .01. *p < .001.

TABLE 3. Summary of Hierarchical Regression Analyses Predicting Work Engagement (N = 456)

Variable	Vigor			Dedication			Absorption		
	β	t	ΔR^2	β	t	ΔR^2	β	t	ΔR^2
Step 1			.40			.41			.36
Personal standards	.32***	6.10		.41***	7.90		.39***	7.19	
Organization	.40***	8.14		.33***	6.77		.29***	5.66	
Concern over mistakes	-.14***	-3.34		-.17***	-4.06		-.07	-1.49	
Doubts about actions	-.16***	-3.63		-.07	-2.28		-.05	-1.12	
Step 2			.10			.15			.10
Personal standards	.11	1.97		.17***	3.23		.19***	3.27	
Organization	.24***	4.87		.14**	3.04		.12	2.43	
Concern over mistakes	-.12**	-2.81		-.12**	-3.04		-.05	-1.07	
Doubts about actions	-.16***	-4.05		-.11**	-2.81		-.06	-1.50	
Mastery-approach goals	.42***	8.01		.51***	10.39		.45***	8.37	
Mastery-avoidance goals	-.02	-0.32		.04	0.83		.01	0.24	
Performance-approach goals	.15**	2.51		.16**	3.02		.05	0.91	
Performance-avoidance goals	-.09	-1.41		-.19***	-3.28		-.05	-0.75	

** $p < .01$. *** $p < .001$.

standards and organization were negatively associated with exhaustion ($\beta = -.31, p < .001$; and $\beta = -.20, p < .001$, respectively). By contrast, concern over mistakes ($\beta = .22, p < .001$) and doubts about actions ($\beta = .21, p < .001$) both positively predicted exhaustion. In Step 2, students' achievement goals were included in the model. Adding these variables increased the amount of variance explained for exhaustion by 8%, $F(8, 447) = 25.52, p < .001$. Results from this step suggested that when other predictors were controlled for, mastery-approach goals negatively predicted exhaustion ($\beta = -.36, p < .001$), whereas performance-avoidance goals were positively related to this very variable ($\beta = .26, p < .001$).

Cynicism. The amount of variance (23%) explained by students' different perfectionistic tendencies in the first step of the analysis was statistically significant for cynicism, $F(4, 451) = 34.44, p < .001$. The tendencies to set higher personal standards ($\beta = -.29, p < .001$) and to be organized ($\beta = -.22, p < .001$) were negatively correlated with cynicism, whereas concern over mistakes ($\beta = .24, p < .001$) and doubts about actions ($\beta = .18, p < .001$) were positively associated with cynicism. Adding achievement goals in Step 2 increased the amount of variance explained for cynicism by 10%, $F(8, 447) = 28.05, p < .001$. When other variables were controlled for, mastery-approach goals negatively predicted cynicism, $\beta = -.44, p < .001$.

Lack of efficacy. Variables entered in Step 1 (i.e., adaptive and maladaptive perfectionism) predicted a statistically significant amount of the variance (46%) in the lack of efficacy, $F(4, 451) = 94.27, p < .001$. Personal standards and organi-

zation negatively predicted the reported lack of efficacy ($\beta = -.31, p < .001$; and $\beta = -.45, p < .001$, respectively). Conversely, concern over mistakes positively predicted the lack of efficacy ($\beta = .21, p < .001$). Results from the second step of the analysis indicated that adding achievement goals increased the amount of variance explained in the lack of efficacy by 8%, $F(8, 447) = 64.95, p < .001$. When other variables were accounted for, mastery-approach goals were negatively related to this dimension of academic burnout ($\beta = -.40, p < .001$).

Hierarchical Regressions Predicting Work Engagement

Vigor. Table 3 presents results of hierarchical regressions predicting students' work engagement. In terms of vigor, students' different perfectionistic tendencies were entered in Step 1 and predicted a statistically significant portion of the variance (40%), $F(4, 451) = 74.58, p < .001$. The setting of personal standards ($\beta = .32, p < .001$) and the tendency to be organized ($\beta = .40, p < .001$) positively predicted vigor, whereas concern over making mistakes ($\beta = -.14, p = .001$) and doubts about actions ($\beta = -.16, p < .001$) negatively predicted vigor. Adding achievement goals in Step 2 increased the amount of variance explained for vigor by 10%, $F(8, 447) = 55.07, p < .001$. When other predictors were accounted for, mastery and performance-approach goals were positively correlated with vigor ($\beta = .42, p < .001$; and $\beta = .15, p < .01$, respectively).

Dedication. The amount of variance (41%) explained by students' different perfectionistic tendencies in the first step of the analysis was statistically significant for dedication,

TABLE 4. Mean Differences Among Students with Different Subtypes of Perfectionism

Variable	Adaptive (n = 103)		Maladaptive (n = 85)		Combined (n = 117)		F (univariate analyses)
	M	SD	M	SD	M	SD	
Exhaustion	2.35 _a	0.88	3.43 _c	0.75	2.83 _b	0.87	38.36 ^{***}
Cynicism	1.99 _a	0.89	3.23 _c	0.62	2.40 _b	0.91	47.01 ^{***}
Lack of efficacy	1.90 _a	0.53	2.86 _c	0.57	2.10 _b	0.59	72.18 ^{***}
Vigor	3.50 _a	0.69	2.31 _c	0.64	3.20 _b	0.81	65.54 ^{***}
Dedication	3.65 _a	0.62	2.54 _b	0.64	3.48 _a	0.80	60.04 ^{***}
Absorption	3.36 _a	0.73	2.41 _b	0.74	3.39 _a	0.77	51.48 ^{***}

Note. Different subscripts denote statistically significant differences ($p < .05$) in means according to Tukey's criteria.
^{**} $p < .01$. ^{***} $p < .001$.

$F(4, 451) = 79.53, p < .001$. Both the tendencies to set higher personal standards ($\beta = .41, p < .001$) and to be organized ($\beta = .33, p < .001$) positively predicted students' reported dedication, whereas concern over mistakes ($\beta = -.17, p < .001$) predicted dedication negatively. Results from Step 2 indicated that adding achievement goals increased the amount of variance explained by 15% for dedication, $F(8, 447) = 71.05, p < .001$. When other variables were controlled for, mastery ($\beta = .51, p < .001$) and performance-approach goals ($\beta = .16, p < .01$) were positively correlated with dedication, whereas performance-avoidance goals were negatively related to this indicator of work engagement ($\beta = -.19, p = .001$).

Absorption. Students' different perfectionistic tendencies were entered in Step 1 and accounted for a statistically significant portion of the variance (36%) in absorption, $F(4, 451) = 62.70, p < .001$. Personal standards and organization positively predicted the reported absorption ($\beta = .39, p < .001$; and $\beta = .29, p < .001$, respectively). Adding achievement goals in the second step increased the amount of variance explained by 10% for absorption, $F(8, 447) = 48.19, p < .001$. When other predictors were controlled for, mastery-approach goals were positively associated with absorption ($\beta = .45, p < .001$).

Mean Differences Among Students with Different Subtypes of Perfectionism

Results of hierarchical regressions revealed that perfectionism played a much greater role than achievement goals in predicting adolescents' academic burnout and work engagement. To further determine the differences in these outcome variables of interest among students with different subtypes of perfectionism, scores on the Adaptive and Maladaptive Perfectionism scales (Frost et al., 1990) served to identify adolescents who endorsed a certain subtype of perfectionism. Participants who scored above the mean on Adaptive Perfectionism and below the mean on Maladap-

tive Perfectionism were grouped as adaptive perfectionists. Conversely, adolescents who scored above the mean on Maladaptive Perfectionism and below the mean on Adaptive Perfectionism were selected as maladaptive perfectionists. And those who scored above the means on Adaptive and Maladaptive Perfectionism were identified as combined perfectionists. In total, 305 of 456 students met this rigorous definition, including 103 adaptive perfectionists, 85 maladaptive perfectionists, and 117 combined perfectionists. Table 4 presents the means and standard deviations of dependent variables according to students' different perfectionistic tendencies.

The assumption for the multivariate analysis of variance (MANOVA) had been examined before the analysis was performed. Because cell sizes for independent variables (i.e., adaptive, maladaptive, and combined perfectionists) were unequal, Box's M test was conducted first to check for the homogeneity of covariance matrices. The result of this test was not statistically significant ($F = 1.81, p > .05$), indicating the confirmation of this assumption (Tabachnick & Fidell, 2007). The MANOVA yielded statistically significant effects for perfectionistic tendencies (Wilks's $\lambda = .56$), $F(12, 594) = 16.64, p < .001, \eta^2 = .25$. Results of univariate analyses of the main effects of students' tendencies toward perfectionism are detailed subsequently.

Exhaustion. Results of the univariate test showed statistically significant effects of perfectionistic orientations on exhaustion, $F(2, 302) = 38.36, p < .001, \eta^2 = .20$. Post hoc Tukey analysis indicated that adaptive perfectionists reported statistically significantly lower levels of exhaustion ($M = 2.35, SD = 0.88$) than did combined perfectionists ($M = 2.83, SD = 0.87$). Moreover, combined perfectionists scored statistically significantly lower on exhaustion than did maladaptive perfectionists ($M = 3.43, SD = 0.75$). Table 5 displays calculated effect sizes (Cohen's d values) to reveal the magnitudes of mean differences among groups.

TABLE 5. Effect Size Statistics (Cohen's *d*) for the Differences Among Students with Different Subtypes of Perfectionism

Variable	Adaptive versus maladaptive	Adaptive versus combined	Maladaptive versus combined
Exhaustion	1.33	0.55	0.75
Cynicism	1.63	0.46	1.07
Lack of efficacy	1.80	0.36	1.33
Vigor	1.80	0.40	1.23
Dedication	1.79	0.24	1.30
Absorption	1.30	0.04	1.31

Cynicism. The univariate test indicated statistically significant effects on cynicism, $F(2, 302) = 47.01, p < .001, \eta^2 = .24$. Post hoc analysis showed that adaptive perfectionists ($M = 1.99, SD = 0.89$) scored statistically significantly lower on cynicism than did combined perfectionists ($M = 2.40, SD = 0.91$). Further, combined perfectionists had statistically significantly lower scores on cynicism than did maladaptive perfectionists ($M = 3.23, SD = 0.62$).

Lack of efficacy. The univariate test revealed statistically significant effects on the lack of efficacy, $F(2, 302) = 72.18, p < .001, \eta^2 = .32$. Post hoc Tukey analysis showed that adaptive perfectionists ($M = 1.90, SD = 0.53$) scored statistically significantly lower on the lack of efficacy than did combined perfectionists ($M = 2.10, SD = 0.59$). Additionally, combined perfectionists were statistically significantly less likely to feel the lack of efficacy than maladaptive perfectionists ($M = 2.86, SD = 0.57$).

Vigor. The univariate analysis yielded statistically significant effects on vigor, $F(2, 302) = 65.54, p < .001, \eta^2 = .30$. Tukey analysis suggested that adaptive perfectionists ($M = 3.50, SD = 0.69$) reported statistically significantly higher levels of vigor than did combined perfectionists ($M = 3.20, SD = 0.81$). Moreover, combined perfectionists scored statistically significantly higher on vigor than did maladaptive perfectionists ($M = 2.31, SD = 0.64$).

Dedication. Results of the univariate test showed statistically significant effects on dedication, $F(2, 302) = 60.04, p < .001, \eta^2 = .28$. Tukey analysis indicated that adaptive ($M = 3.65, SD = 0.62$) and combined perfectionists ($M = 3.48, SD = 0.80$) had statistically significantly higher scores on dedication than did maladaptive perfectionists ($M = 2.54, SD = 0.64$).

Absorption. The univariate test indicated statistically significant effects on absorption, $F(2, 302) = 51.48, p < .001,$

$\eta^2 = .25$. Post hoc Tukey analysis showed that adaptive ($M = 3.36, SD = 0.73$) and combined perfectionists ($M = 3.39, SD = 0.77$) reported statistically significantly higher levels of absorption than did maladaptive perfectionists ($M = 2.41, SD = 0.74$).

Discussion

The present findings enhance the understanding of mechanisms that determine adolescents' different patterns of engagement in schoolwork within the Taiwanese context. As hypothesized, perfectionism along with achievement goals plays a role in predicting Taiwanese students' burnout and work engagement. Conversely, there were no significant gender effects in this regard. The contributions of perfectionistic tendencies to academic burnout and engagement were found to be far greater than those of achievement goals. Additionally, results of the present study show that the levels of adolescents' burnout and engagement vary as a function of perfectionistic tendencies. Adaptive perfectionists appear to demonstrate the healthiest profile by reporting the lowest levels of burnout and the highest levels of vigor. Subsequently I discuss in more detail several important findings.

Predicting Factors of Academic Burnout

Results from hierarchical regression analyses indicate that perfectionism and achievement goals statistically significantly predict Taiwanese junior high school students' academic burnout. Nonetheless, the contributions of perfectionistic tendencies to all the indicators of academic burnout, lack of efficacy in particular, are far greater than those of achievement goals. Perfectionism accounts for almost half the variance (46%) in reduced efficacy, suggesting the close relationships of perfectionistic orientations to feelings of incompetence and a lack of achievement at schoolwork. As expected, across the three dimensions of academic burnout, personal standards, and organization, namely, the adaptive aspects of perfectionism emerge as negative predictors. Adolescents with higher levels of positive perfectionistic strivings report lower levels of academic burnout. These findings reveal that adaptive perfectionism may function as a buffer of burnout among adolescents.

Conversely, evaluative concerns that underlie maladaptive perfectionism constitute positive determinants of academic burnout. Concern over mistakes positively predicts all the dimensions of academic burnout in the present study. When adolescent students are preoccupied with others' evaluation of their academic performance and fearful of making mistakes, academic burnout syndrome arises. The contrasting effects of adaptive versus maladaptive perfectionistic tendencies on student burnout found in the present research not only reveal the nature of the role of adaptive perfectionism in academic burnout, but further substantiate the conceptualization of perfectionism as a multidimensional construct with both adaptive and maladaptive components.

Although explaining only a modest amount of the variance (8%~10%), achievement goals make a unique contribution beyond perfectionism in predicting academic burnout. It is noteworthy that the effects of adaptive perfectionistic tendencies are no longer statistically significant when adding achievement goals to regression models. Instead, mastery-approach goals exert negative influences on all the indicators of student burnout. Adolescents endorsing mastery-approach goals are less prone to experience academic burnout. These findings indicate that mastery-approach goals may act as mediators of the relationships between adaptive perfectionistic strivings and academic burnout. The motivation to approach success inspires adaptive perfectionists to pursue mastery-approach goals for the development of competence or attainment of task mastery (Elliot, 2005). In turn, mastery-approach goals enable students to hold fast and intrinsically enjoy challenging work (Kaplan & Maehr, 2007). By contrast, performance-avoidance goals are found in the present study to be linked with emotional exhaustion. The very association is consistent with the hypothesis that this type of goal presses individuals to constantly ruminate about failure-induced threat. Such rumination may give rise to adolescents' feelings of being depleted of their emotional resources.

Predicting Factors of Work Engagement

Findings of the present study reveal that perfectionism and achievement goals emerge as statistically significant predictors of adolescents' work engagement. Again, the proportions of variance in all the indicators of work engagement explained by perfectionistic tendencies (36%~41%) are much greater than those explained by achievement goals (10%~15%). In addition, in comparison with the contributions of perfectionistic tendencies to academic burnout, the amounts of variance in work engagement accounted for by perfectionism are generally even larger. Evidently, adolescent students' engagement in schoolwork is profoundly determined by their perfectionistic orientations. As opposed to the negative correlation found between adaptive perfectionism and academic burnout, students' adaptive perfectionistic strivings positively predict the three dimensions of work engagement. The reverse directionality confirms that the proposition that student burnout can be viewed as an erosion of academic engagement (Maslach & Leiter, 1997) is cross-culturally invariant. Further, these findings once again support the optimal effects of adaptive perfectionism on adolescents' quality of engagement in schoolwork.

Maladaptive perfectionistic tendencies were found to be negatively related to vigor and dedication. Students' fear of making mistakes was proved to be detrimental to effort and involvement in their work. Moreover, a tendency to doubt the quality of performance is likely to drain out energy. All in all, results from regression analyses suggest that higher levels of adaptive perfectionistic strivings in combination with lower levels of maladaptive perfectionistic tendencies

may facilitate work engagement. In contrast, higher levels of maladaptive perfectionism coupled with lower levels of adaptive perfectionism appear to elicit academic burnout.

As with the positive correlation between adaptive perfectionism and work engagement, mastery and performance-approach goals are found to be positively associated with engagement in schoolwork. Mastery-approach goals constitute a remarkably powerful goal type that not only helps ease academic burnout, but thoroughly boosts engagement, given its statistically significant effects across indicators that represent strikingly different quality of engagement. Unlike the omnibus effects of mastery-approach goals on work engagement, performance-approach goals only positively predict vigor and dedication. This type of goal is not related to absorption. As Elliot (2005) suggested, the focus on positive possibilities in mastery and performance-approach goals was posited to bring forth a somewhat similar set of positive processes and outcomes. To demonstrate their competence relative to others, students espousing performance-approach goals may be full of energy and enthusiasm, as well as strongly committed to their schoolwork. However, the external evaluative focus embedded in performance-approach goals tends to limit the extent to which individuals adopting this type of goal enjoy inherently interesting aspects of the task itself (Elliot & Harackiewicz, 1996). This clearly explains why performance-approach goals are found to be unrelated to absorption, the feeling of being carried away by the task.

In contrast to the positive effects of performance-approach goals on work engagement, performance-avoidance goals negatively predict students' dedication. Perceived competence has been seen as an antecedent of achievement goal adoption (Elliot & Church, 1997). Individuals with low perceived competence are inclined to focus on the possibility of failure and hence adopt performance-avoidance goals. Because these students struggle to escape appearing incompetent, they may withdraw effort from the task on purpose to deflect others' perceptions away from low ability should poor performance occur (Covington, 1992). In sum, results from hierarchical regression analyses show that antecedents of work engagement are comparable with those of academic burnout, except that the direction of relationship is reversed.

Profiles of Students with Different Subtypes of Perfectionism

This study also documents similarities and differences across all the indicators of academic burnout and work engagement among students with different subtypes of perfectionism. Results of the MANOVA substantiate findings from hierarchical regression analyses. In general, adaptive perfectionists display the healthiest pattern of engagement in schoolwork. They obtain the lowest scores across all the dimensions of academic burnout and the highest scores on vigor. Those who are equipped with positive achievement strivings but without evaluative concerns report fewer feelings of drained, cynicism, and incompetence. Also, they have the highest levels of energy and resilience when

undertaking academic challenges. By contrast, maladaptive perfectionists have the highest scores across all the indicators of burnout. Moreover, the quality of their work engagement is worrisome, given that adolescents of this group obtain the lowest scores on all the dimensions assessing engagement in schoolwork. Put another way, students with the tendency to define their worth by accomplishments of excessively rigid standards are identified as the at-risk group in need of assistance to address their problematic patterns of engagement.

Combined perfectionists score in between adaptive and maladaptive perfectionists on most variables of interest. When adolescents simultaneously endorse adaptive and maladaptive perfectionistic orientations, the beneficial effects on ameliorating burnout and fostering work engagement stemming from the hope of success may be somewhat offset by the fear of failure that underlies maladaptive perfectionism.

Implications for Educational Practices

The present findings suggest that as individual attributes, perfectionistic and achievement goal orientations should be taken into account when implementing practices for academic burnout prevention and engagement enhancement. In consistence with the conceptualization as a multidimensional construct, perfectionism appears to have multifaceted effects on adolescents' engagement in schoolwork. Adaptive perfectionism emerges as a positive predictor of all the indicators of work engagement. The cultivation of the two dimensions of adaptive perfectionism (i.e., personal standards and organization) is therefore expected to promote active engagement. To nurture students' adaptive perfectionistic tendencies, teachers are encouraged to design instructions for metacognitive strategies such as reasonable goal setting, study planning, and time management.

Contrary to the positive effects of adaptive perfectionism on work engagement, maladaptive perfectionism may not only diminish vigor and dedication, but also contribute to or exacerbate academic burnout. Because of their pursuit of high standards in a rigid fashion, maladaptive perfectionists are apt to chronically engage in harsh self-scrutiny and negative self-evaluation when they fail to fully meet the standards (Blatt, 1995). These self-defeating features are thought to originate from examples of controlling socialization. When the primary socializing agents (e.g., parents or teachers) express their love contingently upon the child's performance, maladaptive perfectionism is likely to arise. Maladaptive perfectionists' inner compulsions to continuously question their own performance and ability are essentially driven by a contingent self-esteem (Shahar, Blatt, Henrich, Ryan, & Little, 2003). To counter the detrimental effects of maladaptive perfectionism resulting from psychologically controlling practices, teachers are advised to create an autonomy-supportive classroom context characterized by the provision of opportunities for self-initiation and choice, the acknowledge of students' perspective, and the provision

of a meaningful rationale for the requirement (Soenens & Vansteenkiste, 2010).

Another implication that can be drawn from the present findings concerns the repeatedly found optimal effects of mastery-approach goals on adolescents' engagement in schoolwork. The very goal type is positively associated with all the indicators of work engagement and negatively related to the three dimensions of academic burnout. Put differently, mastery-approach goals may effectively enable students to focus their attention and energy on studying. Moreover, adolescents may be protected from academic burnout through the pursuit of this type of goal. To foster the adoption of mastery-approach goals, teachers should engage in mastery-focused practices including providing a personally meaningful and challenging task, encouraging learning from mistakes, and recognizing the value of making progress rather than outperforming others (Ames, 1992). Also, the use of competitive incentives, the social comparison of students, and the strong emphasis on evaluation per se should be avoided in the classroom settings.

Limitations and Future Research

Although results of the present study provide insights into educational practices, there are several limitations that need to be addressed in future research. First, findings of the study are all based on self-report measures. Future research should benefit from incorporating other methods of data collection, such as interviews or teachers' reports. Second, it is speculated that mastery-approach goals mediate the relationships between perfectionistic tendencies and student burnout. The regression procedure employed in the present research, nevertheless, does not allow precise illumination of pathways among perfectionism, achievement goals, and academic burnout versus work engagement. Future research using structural equation modeling to test the path model is encouraged. Third, students who experience burnout may use inefficient study strategies that place them at a disadvantage academically and psychologically (Jacobs & Dodd, 2003). More investigations should be conducted to determine relations among personality and motivational orientations, strategy use, and academic burnout. Finally, burnout has rarely been studied as a process that develops over time (Maslach & Schaufeli, 1993). Future research should explore functions of perfectionistic and achievement goal orientations across time. Such research has the potential for effective interventions fostering adaptive academic engagement as well as optimal psychological functioning.

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