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Perfectionism, Implicit Theories of Intelligence, and Taiwanese Eighth Graders' Academic Engagement

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Abstract

The present study attempted to examine how Taiwanese junior high school students' perfectionistic tendencies and implicit theories of intelligence were related to their academic emotions and approach vs. avoidance self-regulation, and to determine differences in contingent self-worth, emotions, and self-regulation among students with different subtypes of perfectionism. Four hundred and eighty-one eighth-grade Taiwanese students completed a self-reported survey assessing their perfectionistic tendencies, implicit theories of intelligence, academic emotions, behavioral self-regulation, and use of self-handicapping strategies. Results suggested that adaptive perfectionism enabled adolescents to experience positive emotions and to engage in behavioral self-regulation, whereas maladaptive perfectionism was positively associated with negative emotions and self-handicapping. In addition, the incremental theory of intelligence predicted positive affect and constructive coping. By contrast, the entity theory was positively correlated with negative emotions and self-handicapping. This study also documented profiles of students with different perfectionistic tendencies. Findings showed that in general, adaptive perfectionists displayed the healthiest emotions and self-regulatory styles. Implications for education and future research are discussed.

Keywords: perfectionism, implicit theories of intelligence, academic emotions, self-handicapping, contingent self-worth

Perfectionism, Implicit Theories of Intelligence, and Taiwanese Eighth Graders' Academic Engagement

Perfectionism has been generally conceptualized as a dispositional tendency to set excessively high standards for performance and to define one's worth by the accomplishments of those standards. Additionally, individuals with high levels of perfectionism are inclined to evaluate their performance in an overly critical manner (Burns, 1980; Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990; Pacht, 1984). An abundant literature has suggested the links between perfectionism and an array of psychological problems including performance anxiety, depression, a chronic sense of failure, procrastination, and shame (Frost et al., 1990; Mor, Day, Flett, & Hewitt, 1995; Dunkley, Blankstein, Masheb, & Grilo, 2006; Hamachek, 1978; Pacht, 1984). Despite the well-documented deleterious effects of perfectionism, cumulative evidence indicates that the adaptive aspects of perfectionism need to be taken into account as well when investigating the very trait (Hamachek, 1978; Stumpf & Parker, 2000; Slade & Owens, 1998; Stoeber, Harris, & Moon, 2007; Suddarth & Slaney, 2001; Terry-Short, Owens, Slade, & Dewey, 1995).

Adaptive vs. Maladaptive Perfectionism

Adaptive perfectionism is by no means an innovative construct. Earlier theorists such as Hamachek (1978) argued that some aspects of perfectionism may foster excellence and striving to achieve important goals. According to Hamachek (1978), in contrast with "neurotic perfectionists" who experience elevated levels of guilt and shame when engaging in harsh evaluation of their behaviors, "normal perfectionists" enjoy their strivings and feel satisfied with their performance. Slade and Owens (1998) also distinguished conceptually between healthy perfectionism and unhealthy perfectionism. A healthy form of perfectionism leads to achievement of high standards without psychological distress, while an unhealthy form of perfectionism is regarded

to be associated with such self-defeating behaviors as being overly concerned with how others evaluate the self, self-doubts, and worries over making mistakes.

On the basis of these theorists' arguments, two types of perfectionism should be differentiated. One type has been termed as normal, healthy, or adaptive perfectionism characterized by positive achievement striving. The other type has been termed as neurotic, unhealthy, or maladaptive perfectionism capturing maladaptive evaluative concerns. Whereas maladaptive perfectionism was found to be positively related to psychological dysfunction, adaptive perfectionism tended to be positively correlated with healthy adjustment (Stoeber et al., 2007). The examination of the positive aspects of perfectionism echoes the more recent focus of positive psychology on the conditions and processes that contribute to the flourishing or optimal functioning of people (Gable & Haidt, 2005). Hence, the identification of two types of perfectionism can broaden the academic view of perfectionism that has been limited to the dysfunctional facets (Bieling, Israeli, & Antony, 2004).

Built upon the conceptualization of perfectionism as a multidimensional construct with both adaptive and maladaptive aspects, Frost et al. (1990) developed a validated and widely used measure of perfectionism termed "Multidimensional Perfectionism Scale." These researchers identified six 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 will lead to the loss of respect of others (Kawamura, Frost, & Harmatz, 2002). The third component is the tendency to doubt the quality of one's performance. It measures the extent of one's confidence in his or her ability to complete tasks. The fourth dimension measures a tendency to be organized. Among these components, high

personal standards along with this emphasis on orderliness are regarded as features of adaptive perfectionism. By contrast, both concern over mistakes and doubts about actions reflect a self-critical orientation associated with maladaptive perfectionism (Bieling, Israeli, Smith, & Antony, 2003). The fifth and sixth dimensions assess the theorized root of perfectionism, high parental expectations and parental criticism. Unlike the above dimensions measuring the intrapersonal aspects of perfectionism, these components concerning the perceptions of parents' attitude are considered interpersonal (Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005). Given that the present research focused on the intrapersonal aspects of adaptive vs. maladaptive perfectionism, factors of parental influences were not addressed in this study.

Perfectionism and Self-Regulation

The differentiation between adaptive and maladaptive perfectionism may primarily explain the differences in individuals' self-regulatory styles. Slade and Owens's (1998) dual process model of perfectionism suggests that adaptive perfectionism is associated with motivation to approach success, while maladaptive perfectionism is likely to bring about motivation to avoid failure. Hope of success and fear of failure may contrarily affect the ways in which students engage in schoolwork. The setting of high personal standards clearly reveals a positive outlook on life, which is related to a preference for challenging tasks and the desire to work hard (Blatt, D'Afflitti, & Quinlan, 1976; Stoeber & Rambow, 2007). Further, personal standards in combination with organization reflect such positive characteristics as planning and completion of tasks, indicators of behavioral self-regulation (Frost et al., 1990).

In contrast, maladaptive perfectionists' critical evaluation tendencies orient them to be overly concerned with mistakes, to interpret mistakes as equivalent to failure, and to worry about loss of status and worth. Such negative reactions to mistakes may lead to avoidance behaviors to fend off failure or to regain status and worth, for

example, self-handicapping (Bieling et al., 2004; Brown et al., 1999; Pulford, Johnson, & Awaida, 2005). Self-handicapping refers to the use of strategies such as putting off studying until the last moment or fooling around the night before a test that will serve as ready excuses for potential failure (Covington, 1992). Academic self-handicapping is a type of avoidance strategy some students use to deflect others' perceptions away from lack of ability should poor performance occur (Midgley & Urdan, 2001; Urdan & Midgley, 2001). Self-handicapping arises from a sense of self-doubt and a concern about others' evaluation of one's ability level, the very components comprising maladaptive perfectionism (Lynch, 1999). Accordingly, if maladaptive perfectionists feel uncertain of their odds of success, they would intentionally impede their own performance by employing this type of strategy to cope with fear of failure (Pulford et al., 2005).

Whereas there are plenty of studies on perfectionism in college students, little is known about perfectionism in junior high school students (Stoeber & Rambow, 2007). Of the handful studies investigating how perfectionism relates to adolescents' academic engagement (Accordino, Accordino, & Slaney, 2000; Einstein, Lovibond, & Gaston, 2000; Nounopoulos, Asbhy, & Gilman, 2006; Vandiver & Worrell, 2002), no one has yet addressed the relation of adaptive vs. maladaptive perfectionism to patterns of self-regulatory strategy use among junior high students. Moreover, Mobley, Slaney, and Rice (2005) noted that the vast majority of research on perfectionism drew samples from the European American population. Such a sampling preference sharply constrained the generalization of research findings beyond this particular ethnic group. These researchers thus pointed out the need to examine the relevance of perfectionism for diverse ethnic, racial, and cultural groups. In response to their call, the present study attempted to explore the impacts of Taiwanese junior high students' perfectionistic tendencies on their academic emotions and self-regulation. It was

hoped that the investigation would shed light on how perfectionism operates in a non-Western context.

Implicit Theories of Intelligence

In addition to perfectionistic tendencies, students' implicit theories of intelligence have been found to be important determinants of their affective experiences and behaviors in achievement situations (Molden & Dweck, 2000). The current study was therefore intended to explore to what extent implicit theories of intelligence predicted variance in adolescents' academic emotions and self-regulation over and above variance predicted by adaptive vs. maladaptive perfectionism. As a cognitive framework that guides how people interpret and react to achievement situations, implicit theories refer to one's deeply held, but rarely articulated, thoughts about the nature of intelligence (Dweck, 2000; Dweck & Leggett, 1988; Hong, Chiu, & Dweck, 1995). Entity theorists believe that intelligence is a fixed entity that cannot be developed over time, whereas incremental theorists believe that intelligence is malleable and can be increased.

These different views about intelligence are thought to have a profound effect on the way in which people interpret their performance (Henderson & Dweck, 1991; Molden & Dweck, 2006). The belief that intelligence is fixed orients entity theorists to interpret negative performance outcomes as indicators of intellectual inadequacy. In contrast, because incremental theorists view intelligence as malleable, unsatisfactory performance may signify that their abilities would be improved through further attention and effort. Presumably, different emotions are likely to arise more readily within particular views of intelligence (Dweck & Molden, 2005). The greater propensity to make negative ability inferences following failure may raise entity theorists' vulnerability to negative affect, while incremental theorists' orientations toward developing their intelligence appear to enhance positive emotions such as

interest and enjoyment.

Also, individuals with different views about intelligence tend to use contrasting self-regulatory strategies to deal with the challenges and struggles they face (Dweck & Molden, 2005; Molden & Dweck, 2006). When the ability is perceived as fixed, poor performance easily gives rise to serious concerns about the implied negative evaluation of the self. These concerns may lead entity theorists to adopt avoidance strategies (e.g., self-handicapping strategies) for concealing incompetence (Rhodewalt, 1994). On the contrary, when intelligence can be increased, performance setbacks are likely to inspire incremental theorists to engage in self-regulation characterized by active, direct, and constructive coping in order to bring about improvement (Dweck & Molden, 2005). Given the crucial role of implicit views about intelligence in students' responses to academic challenges, a full understanding of self-regulation should include an examination of how these beliefs are related to approach vs. avoidant coping.

Contingent Self-Worth

Another purpose of the current study was to determine whether students' perceived levels of contingent self-worth would vary with different perfectinistic tendencies. As stated previously, one of the prominent characteristics of perfectionists is that they are apt to measure their self-worth in terms of achieving self-imposed standards. Nevertheless, it remains unclear whether adaptive and maladaptive perfectionists would have the same level of contingent self-worth such that both groups evaluate themselves based on the attainment of standards. Contingent self-worth refers to a domain of outcomes on which one has staked his or her self-esteem. How the person defines his or her worth depends on adherence to self-standards in that domain (Crocker & Wolfe, 2001). It appears that the primary component of adaptive perfectionism, the setting of personal standards, does not

necessarily lead to the judgment of one's self-worth depending on adherence to those standards. It is maladaptive perfectionism characterized by evaluative concerns that may be associated with higher levels of contingent self-worth. In other words, the levels of perfectionists' contingent self-worth were expected to be indicators differentiating adaptive from maladaptive perfectionists. If this would be the case, then what about those students holding both adaptive and maladaptive perfectionistic beliefs simultaneously? Would one subtype of perfectionism override the effects of the other subtype of perfectionism in terms of students' contingent self-worth? These interesting questions deserve more attention because they have not been answered in the literature yet.

To sum up, the present research was devised to examine how Taiwanese junior high school students' perfectionistic tendencies and implicit theories of intelligence were related to their academic emotions and approach vs. avoidance self-regulation, and to determine differences in contingent self-worth, emotions, and self-regulation among students with different subtypes of perfectionism. Specifically, this study attempted to address the following research questions: (a) Do students' perfectionistic tendencies and implicit views about intelligence predict their positive and negative academic emotions? (b) Do students' perfectionistic tendencies and implicit views about intelligence predict their behavioral self-regulation and self-handicapping strategy use? (c) Do students' reported levels of contingent self-worth, academic emotions, and approach vs. avoidance self-regulation differ according to their perfectionistic tendencies?

Method

Participants

The participants included 481 eighth-grade Taiwanese students from fifteen classes in three junior high schools. Participating schools were located in the northern

part of Taiwan. All of the school principals granted initial consent for data to be collected in their schools. The 247 girls (51%) and 234 boys ranged in age from 12 years, 6 months to 15 years, 1 month (M = 13 years, 5 months). The school districts were primarily middle class in terms of socioeconomic status. All of the participants were Taiwanese. Guidelines for the proper treatment of human subjects were followed.

Procedure

The data were collected at the beginning of the year in eighth grade (September). Students were required to fill out a few questionnaires (described in detail below) during regular class time. There were two research assistants in each class for the data collection. They assured students of the confidentiality of their self-reports and encouraged them to respond to the items as accurately as possible. When the students filled out the questionnaires, the two assistants walked around to check skipped items and ensure quality responses.

Measures

Participants were instructed to respond to all items on five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). A Chinese version of this self-report survey was employed. To ensure adequate translation, the guidelines of the International Test Commission (Hambleton, 1994) were followed. All questionnaires were translated into Chinese and then back-translated into English.

Perfectionism. Students' perfectionistic tendencies were assessed by the scale adapted from the Multidimensional Perfectionism Scale (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; α = .80), organization (e.g., "I try to be an organized person"; 4 items; α = .85), concern over mistakes (e.g.,

"People will probably think less of me if I make a mistake"; 5 items; α = .83), and doubts about actions (e.g., "I usually have doubts about the simple everyday things I do"; 4 items; α = .64). 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 their parents. Because the present study was intended to investigate perfectionistic expectations one has for oneself, scales measuring parental expectations and criticism were not considered central to the aspect of perfectionism under investigation.

Next, according to Frost, Heimberg, Holt, Mattia, and Neubauer's study on adaptive vs. maladaptive perfectionism (1993), the personal standards and organization subscales were combined to create the adaptive perfectionism measure (r = .69, p < .001; α = .87). Also, the scores for concern over mistakes and doubts about actions were averaged to form a maladaptive perfectionism composite (r = .49, p < .001; α = .81). To ensure the validity of these two composite scales, a confirmatory factor analysis was completed using LISREL 8.52 (Jöreskog & Sörbom, 2002). Maximum Likelihood was used as the estimation method (Hoyle & Panter, 1995). In the model 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 this model represented an adequate fit to the data, χ^2 (123, N = 481) = 316.41, p < .01, χ^2/N = .65, RMSEA (Root Mean Square Error of Approximation) = .06, GFI (Goodness of Fit Index) = .93, NFI (Normed Fit Index) = .95, NNFI (Non-Normed Fit Index) = .96, CFI (Comparative Fit Index) = .97, IFI (Incremental Fit Index) = .97, RFI (Relative Fit Index) = .94. 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 above .90 was considered acceptable (Hu & Bentler, 1999). Table 1 shows the standardized coefficients for confirmatory factor analyses performed in the present research.

Implicit theories of intelligence scale. Students' implicit theories of intelligence were assessed by the Theories of Intelligence Scale (Dweck, 2000). The scale is composed of two four-item subscales of the entity (e.g., "Your intelligence is something about you that you can't change very much"; $\alpha = .83$) and incremental theories (e.g., "You can always substantially change how intelligent you are"; $\alpha = .77$). A confirmatory factor analysis was performed to ensure the validity of this 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 an acceptable fit for the proposed structure of the scale, χ^2 (16, $N = 481$) = 50.03, $p < .01$, $\chi^2/N = .10$, RMSEA = .07, GFI = .97, NFI = .97, NNFI = .96, CFI = .98, IFI = .98, RFI = .95.

Academic emotions. The questionnaire assessing adolescents' academic emotions was developed based on the Rochester Assessment of Intellectual and Social Engagement (RAISE). It measures the extent to which students feel certain emotions in classroom settings (Miserandino, 1996). The positive emotions subscale (6 items; $\alpha = .84$) was devised to assess such emotional experiences as curiosity (e.g., "When I am doing my work in class, I feel interested") and enjoyment (e.g., "When I am in school, I feel happy"). The negative emotions subscale (5 items; $\alpha = .72$) measures emotions including anxiety (e.g., "When my teacher first explains new material, I feel scared") and boredom (e.g., "When I am doing my work in class, I feel sleepy"). To test the validity 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 an acceptable fit to the data, χ^2 (37, $N = 481$) = 114.07, $p < .05$, $\chi^2/N = .23$, RMSEA = .07, GFI = .96, NFI = .96, NNFI = .96, CFI = .97, IFI = .97, RFI

= .94.

Behavioral self-regulation. Students' behavioral self-regulation was measured by the Behavioral Self-Regulation Scale (Lin, 2006). The scale was developed to assess students' tendencies to invest effort and persist (i.e., approach-oriented behaviors) when experiencing academic difficulties (e.g., "When I encounter difficulties completing academic assignments and want to give up, I always tell myself to keep persisting"; 6 items; α = .90). A confirmatory factor analysis was also run to examine the validity of this scale. In the model tested, all the six items were hypothesized to load onto one latent construct. Results showed that this model provided a good fit to the data, χ^2 (7, N = 481) = 13.56, p > .05, χ^2/N = .03, RMSEA = .04, GFI = .99, NFI = .99, NNFI = .99, CFI = 1.00, IFI = 1.00, RFI = .99.

Self-handicapping. Students' use of self-handicapping strategies was assessed using a five-item scale taken from the Patterns of Adaptive Learning Survey (PALS; Midgley et al., 2000). These items were constructed to measure the extent to which students employ a priori strategies to influence self-presentation. Rather than assessing cognitions, this scale measures students' use of active strategies and behaviors (e.g., "Some students put off doing their math work until the last minute. Then if they don't do well, they can say that is the reason. How true is this of you"; α = .77). In the CFA model, all the five items were hypothesized to load onto a single latent factor. Results showed that this model provided an excellent fit to the data, χ^2 (5, N = 481) = 6.34, p > .05, χ^2/N = .01, RMSEA = .02, GFI = .99, NFI = .99, NNFI = 1.00, CFI = 1.00, IFI = 1.00, RFI = .98.

Contingent self-worth. The Contingencies of Self-Worth Scale developed by Crocker, Luhtanen, Cooper, and Bouvrette (2003) was employed to assess students' perceived levels of contingent self-worth. This measure assesses individuals' perceived sense that their own judgments of self-wroth are influenced by the

outcomes they receive in each domain. For the purpose of the current research, the subscale measuring the extent to which students base their self-esteem on receiving approval and acceptance from others was administered (e.g., "My self-esteem depends on the opinions others hold of me"; 4 items; α = .69). In the model tested in the confirmatory factor analysis, the 4 items were hypothesized to load onto one latent factor. The CFA yielded an excellent fit to the data, χ^2 (2, N = 481) = 0.85, $p > .05$, χ^2/N = .001, RMSEA = .01, GFI = 1.00, NFI = 1.00, NNFI = 1.01, CFI = 1.00, IFI = 1.00, RFI = .99.

Results

Regression Analyses

Table 2 provides descriptive information and correlations for study variables. Regression analyses were performed using SPSS 15.0. Results from the regression analyses are presented first for outcomes regarding students' academic emotions, then for their behavioral self-regulation, and finally for self-handicapping. In these analyses, gender was entered first in the hierarchical regression models. It turned out that gender failed to predict any outcome variable of interest. Students' perfectionistic tendencies as well as implicit theories of intelligence were subsequently entered across the analyses. The alpha level used to determine the significance of all of the regression analyses was set at .01. This more conservative alpha level was selected to reduce the possibility of making a Type I error arising from completing a series of analyses with related outcomes (Wolters, 2004). Results of the hierarchical regression analyses are displayed in Table 3.

Hierarchical Regressions Predicting Academic Emotions

Positive academic emotions. In the first step of the analysis, gender was entered and failed to significantly predict Taiwanese adolescents' positive academic emotions. Results from Step 2 indicated that adding adaptive and maladaptive perfectionism

increased the amount of variance explained by 24% for positive academic emotions, $F(3, 475) = 48.68$, $p < .001$. Both adaptive ($\beta = .53$, $p < .001$) and maladaptive perfectionism ($\beta = -.16$, $p < .001$) emerged as significant predictors of positive academic emotions. In step 3, students' implicit theories of intelligence were entered. Adding these variables increased the amount of variance explained for positive academic emotions by 4%, $F(5, 473) = 36.13$, $p < .001$. When other predictors were accounted for, students espousing an incremental theory tended to report higher levels of positive academic emotions, $\beta = .13$, $p < .01$. By contrast, an entity theory was negatively associated with positive emotions, $\beta = -.15$, $p < .001$.

Negative academic emotions. The amount of variance explained by the predictor variable in the first step of the analysis (i.e., gender) was insignificant for negative academic emotions. Adding the two aspects of perfectionism in Step 2 increased the amount of variance explained for negative academic emotions by 21%, $F(3, 475) = 42.66$, $p < .001$. Adaptive perfectionism was a negative predictor of negative academic emotions ($\beta = -.30$, $p < .001$), whereas maladaptive perfectionism positively predicted negative emotions ($\beta = .50$, $p < .001$). In Step 3, both incremental and entity theories of intelligence were included in the model. Adding these variables increased the amount of variance explained by 6% for negative academic emotions, $F(5, 473) = 35.35$, $p < .001$. Results from this step showed that in addition to adaptive and maladaptive perfectionism, an entity theory of intelligence significantly predicted negative emotions, $\beta = .26$, $p < .001$.

Hierarchical Regressions Predicting Behavioral Self-Regulation

As the first predictor variable, gender failed to explain a significant amount of the variance in behavioral self-regulation. In Step 2, the two subtypes of perfectionism were entered in the equation. Adding these variables increased the amount of variance explained in behavioral self-regulation by 41%, $F(3, 475) = 112.08$, $p < .001$. Both

adaptive (β = .68, p < .001) and maladaptive perfectionism (β = -.12, p < .01) emerged as significant predictors, but in opposite directions. In the final step of the model, students' implicit theories of intelligence were included. Adding these variables increased the amount of variance explained by 5% for behavioral self-regulation, $F(5, 473) = 79.34$, $p < .001$. When other predictors were controlled for, students holding an incremental theory were more likely to invest effort and persist when engaging in academic tasks, $\beta = .20$, $p < .001$.

Hierarchical Regressions Predicting Self-Handicapping

In terms of self-handicapping, gender was entered in Step 1 and failed to predict a significant portion of the variance. Results from Step 2 suggested that adding adaptive and maladaptive perfectionism increased the amount of variance explained in self-handicapping by 20%, $F(3, 475) = 38.63$, $p < .001$. Adaptive perfectionism was a negative predictor of self-handicapping (β = -.41, p < .001), whereas maladaptive perfectionism positively predicted this type of avoidance strategy (β = .41, p < .001). In Step 3, both incremental and entity theories of intelligence were entered. Adding these variables increased the amount of variance explained for self-handicapping by 5%, $F(5, 473) = 30.21$, $p < .001$. In addition to the two aspects of perfectionism, an entity theory significantly predicted students' tendencies to self-handicap, $\beta = .21$, $p < .001$.

Mean Differences among Students with Different Subtypes of Perfectionism

To determine the differences in the primary variables of interest among students with different subtypes of perfectionism, participating adolescents were identified as adaptive perfectionists, maladaptive perfectionists, and combined perfectionists (i.e., those who endorsed both adaptive and maladaptive perfectionism simultaneously). Based on the method that Butler (1998) employed to examine students who were primarily oriented toward one type of concern (a student was selected as expressing a

particular type of concern only if he or she was above the mean on one concern and below the mean on the other concern), scores on the adaptive and maladaptive perfectionism scales (Frost et al., 1990) served to identify adolescents who endorsed certain subtype of perfectionism. Using this criterion, students who scored above the mean on both adaptive and maladaptive perfectionism were identified as combined perfectionists. In total, 309 out of 481 students met this rigorous definition, including 101 adaptive perfectionists, 77 maladaptive perfectionists, and 131 combined perfectionists. Table 4 presents the means and standard deviations of the dependent variables according to students' different perfectionistic tendencies.

As Table 2 displays, in the present study, students' contingent self-worth, academic emotions, behavioral self-regulation, and use of self-handicapping strategies were correlated with one another and thus were used as dependent variables in the multivariate analysis of variance to explore whether adolescents with different subtypes of perfectionism differed in these outcome measures. The assumption for the MANOVA had been examined before the analysis was performed. Because cell sizes for the independent variables were unequal, Box's *M* test was conducted first to check for the homogeneity of covariance matrices. The results of this test was not significant ($F = 1.91$, $p > .05$), indicating the confirmation of this assumption (Tabachnick & Fidell, 1996). MANOVA yielded significant effects for perfectionistic tendencies, Wilks' $\Lambda = .76$, $F(10, 604) = 8.85$, $p < .001$. Results of the univariate analyses of the main effects of students' tendencies toward perfectionism are detailed below.

Contingent self-worth. Results of the univariate test showed significant effects on contingent self-worth, $F(2, 306) = 6.01$, $p < .01$. Post hoc Tukey analysis indicated that adaptive perfectionists reported significantly lower levels of contingent self-worth ($M = 3.07$) than did combined and maladaptive perfectionists ($M = 3.43$ for both groups). In other words, adaptive perfectionists were significantly less likely to

determine their self-worth based on others' approval than both combined and maladaptive perfectionists. Table 5 displays calculated effect sizes (Cohen's *d* values) to reveal the magnitudes of mean differences among groups.

Academic emotions. The univariate test revealed significant effects on positive academic emotions, $F(2, 306) = 7.18$, $p = .00$. Post hoc Tukey analysis showed that adaptive perfectionists ($M = 3.61$) scored significantly higher on positive academic emotions than did both combined ($M = 3.36$) and maladaptive perfectionists ($M = 3.16$). In terms of negative academic emotions, results of the univariate analysis also showed significant effects, $F(2, 306) = 17.75$, $p < .001$. Post hoc analysis suggested that adaptive perfectionists ($M = 1.84$) reported significantly lower levels of negative emotions than did combined ($M = 2.31$) as well as maladaptive perfectionists ($M = 2.40$).

Approach and avoidance regulation. The univariate test indicated significant effects on students' behavioral self-regulation, $F(2, 306) = 16.29$, $p < .001$. Post hoc analysis showed that maladaptive perfectionists ($M = 2.92$) scored significantly lower on behavioral self-regulation than did combined ($M = 3.53$) and adaptive perfectionists ($M = 3.45$). As to self-handicapping, the univariate analysis yielded significant results as well, $F(2, 306) = 17.89$, $p < .001$. Tukey analysis suggested that maladaptive perfectionists ($M = 2.28$) scored significantly higher on self-handicapping than did combined perfectionists ($M = 1.99$). Moreover, combined perfectionists were significantly more likely to use self-handicapping strategies than adaptive perfectionists ($M = 1.64$).

Discussion

The present findings indicate that both perfectionistic tendencies and implicit theories of intelligence have unique and differential effects on Taiwanese junior high students' academic emotions and patterns of self-regulation. Adaptive perfectionism

enables adolescents to experience positive emotions and to engage in behavioral self-regulation, whereas maladaptive perfectionism is positively associated with negative emotions and self-handicapping. In a similar vein, the incremental theory of intelligence fosters students' positive affect and constructive coping when facing academic difficulties. In contrast, the entity view is positively correlated with negative affect and avoidance strategy use. Results from the current study contribute to the understanding of the mechanisms that enhance the flourishing of people advocated by the positive psychology movement. Below, several important findings are discussed.

Effects of Adaptive vs. Maladaptive Perfectionism

The current study primarily attempts to demonstrate the duality of perfectionism by examining the differential impact of adaptive vs. maladaptive perfectionism on Taiwanese adolescents' academic emotions and self-regulation. The empirical findings from the present research substantiate the differentiation. Results from the hierarchical regression analyses suggest contrasting effects of the two forms of perfectionism on the outcome variables of interest. Adaptive perfectionism positively predicts students' positive academic emotions and behavioral self-regulation. Moreover, this form of perfectionism is negatively correlated with negative emotions and self-handicapping. Conversely, adolescents' maladaptive perfectionistic tendencies are positively associated with negative emotions and self-handicapping and yet negatively related to positive affect and approach-oriented strategies.

Findings of the present study validate the argument that not all aspects of perfectionism are unhealthy. Once the influences of negative reactions to imperfection are controlled for, striving for perfection can be a healthy pursuit of excellence (Shafran, Cooper, & Fairburn, 2002). Specifically, perfectionistic strivings in effect have some positive impact on adolescents' emotional well-being along with effort expenditure and task persistence. Further, adaptive perfectionism is linked to fewer

self-defeating behaviors and less vulnerability to negative affectivity. According to Slade and Owens's dual process model of perfectionism (1998), adaptive perfectionism is associated with hope of success. Such a positive outlook, in turn, is supposed to give rise to positive emotions. In addition, motivation to approach success related to adaptive perfectionism may strengthen students' willingness to invest effort and persist (i.e., behavioral self-regulation) when engaging in academic tasks. Accordingly, adaptive perfectionists are less likely to self-handicap.

As opposed to the positive effects of adaptive perfectionism, maladaptive perfectionism exerts negative impact on students' emotional as well as self-regulatory functioning. Dunkley and Blankstein (2000) found self-criticism to be the primary indicator of maladaptive perfectionism latent factor. Put differently, maladaptive perfectionists' dissatisfaction with performance underlies their concern with mistakes and doubts about actions. Needless to say, dissatisfaction with one's own performance easily brings forth negative affect. Also, the fear of failure arising from self-criticism is likely to lead maladaptive perfectionists to engage in self-handicapping for the protection of self-worth (Pulford et al., 2005). The differential effects of adaptive vs. maladaptive perfectionism shown in the present study confirm the need to include both forms when investigating the very construct. A focus only on the dysfunctional facets may result in losing sight of the big picture.

Concerning the predictability of adaptive and maladaptive perfectionism, this set of predicting variables account for around and above 20% of the variance in both positive and negative academic emotions. Dunkley, Zuroff, and Blankstein (2006) found that perfectionism constructs explained 14% of the variance in Canadian college students' positive affect and 24% of the variance in negative affect. For positive affect, the predictive value of perfectionism found in the present research is 10% greater than the value reported in Dunkley et al.'s study. These researchers also

found that perfectionism constructs explained 19% of the variance in avoidant coping (e.g., behavioral and mental disengagement). Findings of the current study show similar magnitude of effects of adaptive vs. maladaptive perfectionism on such avoidance strategy as self-handicapping. The most striking finding involves the relatively large amount of variance (41%) explained in Taiwanese adolescents' behavioral self-regulation. The two forms of perfectionism evidently play a formidable role in these youngsters' effort investment and academic perseverance.

Effects of Implicit Theories of Intelligence

Students' implicit theories of intelligence do indeed account for unique variance in their academic emotions and self-regulation beyond that predicted by perfectionism constructs. Nevertheless, the proportions of the explained variance are rather small (4%~6%), suggesting a relatively minor role of this set of constructs as predictors. Results from the hierarchical regressions indicate that after controlling for adaptive vs. maladaptive perfectionism, the incremental theory positively predicts positive emotions and behavioral self-regulation, whereas the entity theory positively predicts negative emotions and self-handicapping. Put another way, in addition to the positive influences of striving for perfection, the belief that intelligence can be developed over time also enables students to persistently work hard (i.e., behavioral self-regulation) for surmounting difficulties. Moreover, the optimism for intelligence improvement is likely to inspire incremental theorists' curiosity as well as enjoyment while engaging in schoolwork (Dweck & Molden, 2005). In contrast, the belief that intelligence is fixed may lead to entity theorists' constant anxiety about negative ability inference following poor performance. Concerns with failure are likely to propel these students to engage in self-handicapping as an excuse for lack of ability (Lynch, 1999; Midgley & Urdan, 2001).

Profiles of Students with Different Perfectionistic Tendencies

A unique strength of the study design is that it documents similarities and differences in contingent self-worth, emotions, and self-regulation among students with different subtypes of perfectionism. Results of MANOVA corroborate findings emerging from the hierarchical regression analyses. In general, adaptive perfectionists display the healthiest emotions and self-regulatory styles. Combined perfectionists tend to show similar patterns of emotions to those of maladaptive perfectionists. In addition, combined and maladaptive perfectionists share the same level of contingent self-worth. Both groups of students report significantly higher levels of contingent self-worth than do adaptive perfectionists. That is, combined and maladaptive perfectionists' tendencies to determine their self-worth based upon the attainment of standards (others' approval in this case) are significantly greater than those of adaptive perfectionists. Students who score above the mean on the adaptive perfectionism scale and below the mean on the maladaptive perfectionism scale are identified as adaptive perfectionists. Hence, simply striving for excellence yet without evaluative concerns does not orient adaptive perfectionists to measure their self-worth in terms of receiving others' approval. Further, it appears that maladaptive perfectionism is the key factor closely related to one's contingent self-worth. Therefore, combined perfectionists' above-average adaptive perfectionistic tendencies show little effect on their raised levels of approval seeking, an indicator of contingent self-worth in this study.

Across the variables regarding academic emotions and self-regulation, adaptive perfectionists display more positive functioning and yet less negative affect and destructive coping. Put another way, the setting of personal standards of performance combined with a tendency to be organized, while without concern over making mistakes and doubts about the quality of performance may not only heighten adolescents' positive emotions and constructive regulation when engaging in

academic tasks, but also allay their maladaptive emotions and tendencies to self-handicap. These findings demonstrate that adaptive perfectionism per se can be a contributing factor to the optimal functioning of Taiwanese junior high students.

On the contrary, among the three types of perfectionists, maladaptive perfectionists show the most dysfunctional patterns of academic emotions and self-regulation. They report higher levels of negative emotions as well as self-handicapping, and yet lower levels of positive emotions and behavioral self-regulation. Lower levels of behavioral self-regulation suggest that maladaptive perfectionists are unwilling to expend effort and inclined to give up easily. When adolescents only focus on self-criticism while without a positive outlook for their performance, the dismal situation arises.

As to the profile of combined perfectionists, it is noteworthy that there are no significant differences in academic emotions between combined and maladaptive perfectionists. Both groups report lower levels of positive emotions and yet higher levels of negative emotions than do adaptive perfectionists. Although combined perfectionists are as willing to put effort and persist when encountering difficulties as adaptive perfectionists, their emotional well-being seems to be undermined by the coexisting maladaptive perfectionistic tendencies. All in all, the various profiles depicted in the current study suggest that Taiwanese adolescents' academic emotions and self-regulatory styles appear to vary as a function of their perfectionistic tendencies.

Implications for Classroom Practice

The profiles of students with different perfectionistic tendencies documented in the present research have profound implications for the classroom. Given that adaptive perfectionists are found to demonstrate healthy academic emotions and self-regulation, adolescents may benefit from the cultivation of adaptive

perfectionistic traits without being accompanied by overly critical evaluations of their own performance. Namely, adaptive perfectionists are those who set high standards for themselves yet allow minor flaws in their performance as the situation permits (Hamachek, 1978). To meet this definition, on the one hand, teachers should nurture students' aspirations by encouraging them to set higher standards and engage in challenging academic tasks. These practices are supposed to provide students with a positive outlook on life that may contribute to adaptive emotions and willingness to persist at pursuing their goals. On the other hand, teachers are advised to alleviate students' concern about making mistakes through the provision of mastery-oriented motivational support in the classroom. Specifically, teachers can explicitly convey to students that making mistakes is a natural part of learning (Turner, Meyer, Midgley, & Patrick, 2003). By creating an environment in which students feel free to take risks, make mistakes, and try again on their way to success without worrying about putting their self-worth in jeopardy, teachers may facilitate students' adaptive achievement-relevant behaviors while at the same time reducing the potential negative outcomes stemming from evaluative concerns.

Limitations and Future Research

Although the results of the present study provide insights into teachers practices, there are several limitations that need to be addressed in future research. First, findings of the study are all based upon self-report measures. Although the assessment instruments used in the study have proved reliable and valid, future research should benefit from incorporating other methods of data collection, such as interviews or parent and teacher ratings. Second, the sample is restricted to junior high students in Taiwan. The generalizability of these findings needs to be examined in other racial, ethnic, and age groups.

Third, the regression procedure employed in the current research does not allow

illumination of the pathways among adolescents' perfectionistic tendencies, implicit theories of intelligence, academic emotions, and self-regulation. The relatively small contribution of implicit views about intelligence in predicting outcome variables of interest may result from a large proportion of shared variance between this set of predictors and perfectionism constructs. It is likely that perfectionism mediates the effect of implicit theories on a person's emotional and self-regulatory functioning. Future research using structural equation modeling to test the hypothesized path model is encouraged.

Fourth, future research should examine other mechanisms through which the two forms of perfectionism contribute to different emotional experiences and self-regulatory styles. The achievement goals that students endorse may be a promising choice in this respect (Elliot & Thrash, 2001). Specifically, adaptive vs. maladaptive perfectionism may inspire individuals to pursue approach-oriented vs. avoidance-oriented goals. Different types of achievement goals, in turn, lead students to employ different self-regulatory strategies to attain their goals and experience different emotions during the process of goal pursuit. Such an investigation is expected to provide more insight into exactly how perfectionism operates in one's self-regulatory process.

Finally, this study does not explore the social and environmental influences on the individual's perfectionistic tendency. For example, the development of perfectionism has been viewed by a number of theorists as a product of children's interactions with their parents (Barrow & Moore, 1983; Burns, 1980; Missildine, 1963; Pacht, 1984). Further, perfectionistic tendencies formed within the family context may be maintained by the emphasis placed on achievement in the school (Kawamura et al., 2002). It would be informative to examine how parenting and teaching practices may affect individuals' adaptive vs. maladaptive perfectionistic beliefs. Future research

should extend the investigation into the effects of the family and classroom contexts on the subtypes of perfectionism that students adopt. Such research has the potential to help parents and teachers create environments fostering adaptive perfectionism and the associated patterns of self-regulation.

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Table 1

Standardized Coefficients for Confirmatory Factor Analyses (N =481)

Observed variable	Latent construct	β	*t*	SE	SMC
Personal standards 1	Adaptive perfectionism	0.67*	14.84	0.05	0.45
Personal standards 2	Adaptive perfectionism	0.65*	14.15	0.05	0.42
Personal standards 3	Adaptive perfectionism	0.48*	9.84	0.05	0.23
Personal standards 4	Adaptive perfectionism	0.68*	15.07	0.05	0.46
Personal standards 5	Adaptive perfectionism	0.66*	14.36	0.05	0.44
Organization 1	Adaptive perfectionism	0.59*	12.29	0.05	0.35
Organization 2	Adaptive perfectionism	0.72*	16.06	0.05	0.52
Organization 3	Adaptive perfectionism	0.68*	14.88	0.05	0.46
Organization 4	Adaptive perfectionism	0.67*	14.68	0.05	0.45
Concern over mistakes 1	Maladaptive perfectionism	0.66*	13.90	0.05	0.44
Concern over mistakes 2	Maladaptive perfectionism	0.65*	13.71	0.05	0.42
Concern over mistakes 3	Maladaptive perfectionism	0.61*	12.90	0.05	0.37
Concern over mistakes 4	Maladaptive perfectionism	0.68*	14.39	0.05	0.46
Concern over mistakes 5	Maladaptive perfectionism	0.57*	11.58	0.05	0.32
Doubts about actions 1	Maladaptive perfectionism	0.57*	11.65	0.05	0.32
Doubts about actions 2	Maladaptive perfectionism	0.41*	8.11	0.05	0.17
Doubts about actions 3	Maladaptive perfectionism	0.44*	8.66	0.05	0.19
Doubts about actions 4	Maladaptive perfectionism	0.44*	8.59	0.05	0.19
Fixed intelligence 1	Entity theory	0.80*	19.68	0.04	0.64
Fixed intelligence 2	Entity theory	0.91*	23.24	0.04	0.83
Fixed intelligence 3	Entity theory	0.68*	15.92	0.04	0.46
Fixed intelligence 4	Entity theory	0.64*	13.62	0.05	0.41

Malleable intelligence 1	Incremental theory	0.86*	13.92	0.06	0.74
Malleable intelligence 2	Incremental theory	0.68*	14.32	0.05	0.46
Malleable intelligence 3	Incremental theory	0.84*	17.57	0.05	0.71
Malleable intelligence 4	Incremental theory	0.58*	12.83	0.05	0.34
Curiosity 1	Positive emotions	0.74*	17.41	0.04	0.55
Curiosity 2	Positive emotions	0.49*	10.36	0.05	0.24
Curiosity 3	Positive emotions	0.52*	11.57	0.05	0.27
Enjoyment 1	Positive emotions	0.83*	21.07	0.04	0.69
Enjoyment 2	Positive emotions	0.74*	17.91	0.04	0.55
Enjoyment 3	Positive emotions	0.81*	19.79	0.04	0.66
Anxiety 1	Negative emotions	0.33*	6.45	0.05	0.11
Anxiety 2	Negative emotions	0.26*	4.54	0.06	0.07
Anxiety 3	Negative emotions	0.56*	14.57	0.05	0.50
Boredom 1	Negative emotions	0.70*	11.35	0.05	0.31
Boredom 2	Negative emotions	0.70*	14.69	0.05	0.49
Effort investment 1	Behavioral self-regulation	0.73*	17.34	0.04	0.53
Effort investment 2	Behavioral self-regulation	0.78*	19.17	0.04	0.61
Effort investment 3	Behavioral self-regulation	0.78*	19.11	0.04	0.61
Persistence 1	Behavioral self-regulation	0.83*	21.20	0.04	0.69
Persistence 2	Behavioral self-regulation	0.76*	18.37	0.04	0.58
Persistence 3	Behavioral self-regulation	0.72*	16.87	0.04	0.52
Self-handicapping 1	Self-handicapping	0.48*	9.86	0.05	0.23
Self-handicapping 2	Self-handicapping	0.64*	13.79	0.05	0.41
Self-handicapping 3	Self-handicapping	0.74*	16.43	0.05	0.55
Self-handicapping 4	Self-handicapping	0.66*	14.14	0.05	0.44

Self-handicapping 5	Self-handicapping	0.64*	13.75	0.05	0.41
Approval from others 1	Contingent self-worth	0.71*	14.25	0.05	0.50
Approval from others 2	Contingent self-worth	0.57*	11.65	0.05	0.32
Approval from others 3	Contingent self-worth	0.75*	15.02	0.05	0.56
Approval from others 4	Contingent self-worth	0.39*	7.58	0.05	0.15

Note. * $p < .05$.

Table 2

Descriptive Statistics and Correlations for Study Variables (N =481)

Variable	1	2	3	4	5	6	7	8	9
1. Adaptive perfectionism	__								
2. Maladaptive perfectionism	.42**	__							
3. Incremental theory	.52**	.10*	__						
4. Entity theory	-.21**	.24**	-.42**	__					
5. Positive emotions	.46**	.07	.39**	-.31**	__				
6. Negative emotions	-.08	.37**	-.19**	.40**	-.42**	__			
7. Behavioral self-regulation	.64**	.18**	.50**	-.29**	.56**	-.20**	__		
8. Self-handicapping	-.24**	.22**	-.26**	.37**	-.27**	.35**	-.34**	__	
9. Contingent self-worth	.07	.31**	-.11*	.16**	-.10*	.26**	-.04	.03	__
M	3.26	2.50	3.20	1.98	3.22	2.12	3.09	1.95	3.21
SD	.70	.68	.87	.89	.80	.73	.86	.72	.86

Note. * $p < .05$. ** $p < .01$

Table 3

Summary of Hierarchical Regression Analyses Predicting Academic Emotions and Self-Regulation (N= 481)

	Positive emotions			Negative emotions			Behavioral regulation			Self-handicapping		
Variable	β	*t*	$\triangle R^2$	β	*t*	$\triangle R^2$	β	*t*	$\triangle R^2$	β	*t*	$\triangle R^2$
Step 1			.00			.00			.00			.00
Gender	.03	.44		.05	1.11		.02	.36		-.06	-1.26	
Step 2			.24			.21			.41			.20
Gender	.01	.20		.03	.83		.01	.11		-.07	-1.57	
Adaptive perfectionism	.53***	11.95		-.30***	-6.58		.68***	17.64		-.41***	-9.07	
Maladaptive perfectionism	-.16***	-3.52		.50***	11.05		-.12**	-3.00		.41***	8.93	

Step 3		.04		.06		.05		.05
Gender	.01	.22	.05	1.18	.01	.13	-.06	-1.42
Adaptive perfectionism	.40***	7.7	-.18***	-3.51	.54***	12.10	-.30***	-5.62
Maladaptive perfectionism	-.08	-1.7	.39***	8.32	-.06	-1.37	.31***	6.58
Incremental theory	.13**	2.70	-.03	-.51	.20***	4.56	-.06	-1.25
Entity theory	-.15***	-3.22	.26***	5.67	-.08	-2.09	.21***	4.44

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

Table 4

Mean Differences among Students with Different Subtypes of Perfectionism

	Adaptive (n = 101)		Maladaptive (n = 77)		Combined (n = 131)		F
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	(Univariate Analyses)
Contingent self-worth	3.07_{a}	.86	3.43_{b}	.70	3.43_{b}	.92	6.01**
Positive emotions	3.61_{a}	.85	3.16_{b}	.62	3.36_{b}	.79	7.18***
Negative emotions	1.84_{a}	.63	2.40_{b}	.78	2.31_{b}	.72	17.75***
Behavioral self-regulation	3.45_{a}	.78	2.92_{b}	.69	3.53_{a}	.82	16.29***
Self-handicapping	1.64_{a}	.62	2.28_{c}	.64	1.99_{b}	.80	17.89***

Note. Different subscripts denote significant differences ($p < .05$) in means according to Tukey's criteria.

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

Table 5

Effect Size Statistics (Cohen's d) for the Differences among Students with Different Subtypes of Perfectionism

	Adaptive vs. Maladaptive	Adaptive vs. Combined	Maladaptive vs. Combined
Variable	Cohen's *d*	Cohen's *d*	Cohen's *d*
Contingent self-worth	.46	.40	0
Positive emotions	.62	.31	.29
Negative emotions	.80	.70	.12
Behavioral self-regulation	.73	.10	.81
Self-handicapping	1.02	.50	.40

赴國外研究心得報告

計畫編號	出席會議之經費核定於 NSC 97-2410-H-004-017
計畫名稱	出席會議之經費核定於「完美主義雙面刃：適應性 vs. 不適應性完美主義對國中生成就相關歷程之影響探究」計畫
出國人員姓名 服務機關及職稱	施淑慎 國立政治大學師資培育中心教授
出國時間地點	7/26/2009 ~8/5/2009 Palo Alto, CA, U.S.A.; Toronto, Canada
國外研究機構	美國史丹福大學

工作記要：本段期間之工作重點，在於熟悉結構方程模式 (structural equation modeling) 此一統計分析技術中，適用於縱貫性資料分析之 「潛在成長模式」(latent variable growth curve modeling)。國內雖有一些關於 SEM 之專書與工作坊，但不管是書中章節或課程內容，均未涵括較為複雜的潛在成長模式，就社會科學研究者之研究需求而言，該項資訊之缺乏難免造成研究方法選擇上之一大限制。社會科學研究者向來十分關注如何呈現並測量特定現象之變化，然而關於現象變化之探討卻並非易事。傳統上對長期追蹤所得資料之分析方式的最主要問題，即為自動將所測變項之平均數假設為零，因而無法探究在改變的歷程中，個體內與個體間差異的影響。一個理想的成長模式必須具備如下特點：(1) 除了描述個體的發展軌跡外，也要能補捉這些軌跡隨著時間變化而呈現的個別差異。(2) 成長模式必須能探究預測個別差異的變項，以回答「是那些變項對改變的速率產生重要影響？」這類的核心問題。(3) 該模式必須讓研究者得以掌握群組整體的改變趨勢。SEM 中的潛在成長模式由於符合上述要件，而成為遠較其他用以分析縱貫性資料之統計模型優越之研究方法。美國史丹福大學為學術聲譽卓著之名校，所收藏之圖書資料豐富多元，故選擇該校作為進修潛在成長模式之地點。

經由電腦系統檢索所得,研究者前往商學院之 Jackson Business Library 以及 Sloan Math Center 之 Math and Computer Science Library 尋找相關圖書，在 Math and Computer Science Library 發現：單是潛在成長模式此一國內尚未出版任何專書之新近分析技術，該館即擁有一整層書架之藏書，正所謂「工欲善其事，必先利其器」，該校之學術聲譽其來有自。研究者從閱覽館中新出版之書籍中，認識了以下有關潛在成長模式之重要知識： (1) 潛在成長模式與重覆量數變異數分析之比較；(2) 如何使用多變量潛在成長模式同時檢驗多個變項隨著時間所出現的變化；(3) 如何在同一分析中，比較不同群體的變化軌跡；(4) 「年齡層序列設計」(cohort-sequential design) 模式之建構；(5) 縱貫性資料的多層次分析；(6) 序列、類別變項的潛在成長模式；(7) 如何在潛在成長模式中檢驗交互作用效應。研究者擬將這些知識融入未來的研究計畫中，相信應能對國內學生的學習狀況隨著時間而產生的變化軌跡，有更深刻的掌握。

另一部分的工作重點，則是參加 APA 邀請 Bernard Weiner 所進行之講座。Dr. Weiner 之三向

度、六因素之歸因論為當代最重要的成就動機理論之一，本場講座之主要內容乃回顧歸因論的發展歷程，並歸納實證研究之發現與尚待探討的方向。Dr. Weiner 首先提及：歸因論的建構其目的在找出決定人類行為的重要因子，並釐清這些因子間相互影響的順序。他從 Thorndike 的效果律開始，依序介紹 Atkins 的期望價值論、Rotter 的制控信念及 Heider 的自我歸因論如何逐步影響三向度、六因素歸因論之建構，最後則一一解釋結果、歸因方式、情緒和行為間的順序性。本場講座對目前研究的啟發如下：(1) 情緒與動機彼此間息息相關，身為認知心理學家，Dr. Weiner 非但沒有否定情緒在影響人類行為上所扮演的重要角色，更指出不同的結果如何與各種歸因方式交相作用，進而產生自豪、無望、羞恥、、罪疚等各種情緒，再進一步影響吾人行為 。故而探討行為背後的動機因素時，情緒為非常重要的一環，不宜擱置不談。(2) 在動機研究設計上，應設法檢驗相關因子間的影響順序。此一研究方向，恰可採用前述探究縱貫性資料之潛在成長模式加以落實。

出席國際學術會議心得報告

計畫編號	出席會議之經費核定於 NSC 97-2410-H-004-017
計畫名稱	出席會議之經費核定於「完美主義雙面刃：適應性 vs. 不適應性完美主義對國中生成就相關歷程之影響探究」計畫
出國人員姓名 服務機關及職稱	施淑慎 國立政治大學師資培育中心教授
會議時間地點	8/14/2008 ~8/17/2008 美國波士頓
會議名稱	美國心理學會年會
發表論文題目	Role of Self-Determination and Achievement Goals in Learning

一、參加會議經過

本次美國心理學會年會於 8/14/2008~8/17/2008 在 Boston Convention and Exhibition Center 舉行。大會安排研究者論文發表的場次為 8/14 之 11:00~11:50 AM，本場為 paper session，主題為"Advances in Self-Regulation Research"，共發表三篇論文，除了研究者的研究外，另外兩篇論文為"Task Value and Perceived Competency: Age, Gender, and Language Effects"以及"Relation of Academic Motivation to Achievement, School Perseverance, and Well-Being"。由於美國心理學會年會的研討形式以壁報論文居多，因此能夠被選為口頭報告的場次，與其他與會者（可容納約 80 人之會議室完全坐滿）共同深入探討學習動機相關研究，研究者感到十分榮幸。

三位發表人之研究主題皆與自我調節學習有關：第一位 Jessica Black (Stanford University) 檢視工作價值及能力知覺對小三及小五學童閱讀歷程上的影響；第二位 Genevieve Taylor (McGill University) 則探究自我決定論中四種不同的調節型態對高中及大學生學業表現的預測作用；研究者則報告自主支持情境、自主 vs. 受控制動機及不同的成就目標對國中生在學習行為及情緒上的影響，與第二位研究者的研究發現共同呈現了自我決定論相關變項在國中到大學生學習歷程上的效應。

二、與會心得

能與研究興趣相近的同好一同切磋關於研究方法的拓展及相關主題未來研究方向等重要議題，是研究者參與本次研討會的重要收穫。具體而言，第二位研究者 Genevieve Taylor 發現「內攝調節」能正向預測高中生的學業表現，與研究者在關於此一動機型態之預測效應的相關發現相當一致。對於此一與自我決定論之主張有些出入的發現，二人皆認為內攝調節的效應可能會受其他因素調節而出現交互作用效果，關於此一變項對於學習的影響，有再深入探討的必要。

此外，評論人亦對研究者提問：本研究以自陳量表作為研究工具所得之結果，如何確認會反映在受試者的實際行為上？研究者答以後續研究計畫加入「教師觀察評比」及「學生之學業表現」兩個變項，以佐證本研究之發現。會後，我們另外討論到自我決定論與成就目標間之關係。評論人認為自主動機此一構念類似成就目標中的精熟目標，而受控制動機則近似表現目標，二者間關係的探究應極為有趣，但少有人將兩組構念結合於同一研究中。本研究作了這樣的設計，因而得以析辨在控制住其中一組變項後，另一組變項的淨效果。評論人稱讚這是很好的設計與難得的資料，研究者因此很受鼓舞。

除了參與研討會外，研究者亦於書展中購得今年甫出版的 Handbook of Approach and Avoidance Motivation。這本書由成就目標研究權威 Andrew Elliot 所編輯，網羅相關領域之重量級學者，從神經生理學、認知、情緒與個人福祉、自我及社會脈絡等面向一一檢視剖析趨向與逃避動機，讓研究者如獲至寶，深信該書將會為日後研究提供重要洞見。