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Dear Dr. Shih:

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Consulting Editor(s)' Comments to Author:
Item #6 in your response is a clear and concise rationale for the hierarchical regression. You need to add that level of explanation to the first paragraph of page 16 where "causally prior" is now mentioned. The explanation would help readers at that point.

An Examination of Factors Related to Taiwanese Adolescents' Reports of Avoidance Strategies

Abstract

The present study attempted to examine how Taiwanese junior high students' perceptions of autonomy support from teachers and parents as well as autonomous vs. controlled motivation were related to their implicit theories of intelligence, and to determine the ability of these constructs to explain students' reports of avoidance strategies including self-handicapping, avoiding help seeking, and avoiding novelty. Four hundred and sixty-one eighth-grade students completed a self-report survey related to the variables of interest. Results lent support to the applicability of the SDT perspective to the non-Western culture. Students who perceived higher levels of autonomy support from teachers displayed more adaptive achievement striving than did their counterparts perceiving lower levels of autonomy support in the learning environment.

Keywords: avoidance strategies, self-determination theory, implicit theories of intelligence, autonomy support, self-regulation

An Examination of Factors Related to Taiwanese Adolescents' Reports of Avoidance Strategies

Researchers and theorists studying achievement behaviors have acknowledged the distinction between approach and avoidance motivation for more than half a century. The classic achievement motivation theorists (McClelland, Atkinson, Clark, & Lowell, 1953; Murrary, 1938; Lewin, Dembo, Festinger, & Sears, 1944) proposed that achievement behaviors may be driven by dispositional tendencies to seek success and avoid failure. In the past few decades, the motive to avoid failure (fear of failure) often has been synonymous to test anxiety (Ceranski, Teevan, & Kalle, 1979; Gelbort & Winer, 1985; Goldberg, 1973; Herman, 1990; Simons & Bibb, 1974; Watson & Siegel, 1966). By adolescence students struggling to escape appearing incompetent adopt avoidance strategies to deflect attention from low ability (Covington, 1992). Several strategies that students employ to protect them from negative judgments by others include self-handicapping, avoidance of help seeking, and resisting novel approaches to learning. However, in comparison with test anxiety, there has been relatively less discussion of such avoidance behaviors.

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). Because others may infer that a lack of ability causes failure, it is crucial for handicappers to avoid such negative implications about ability. In addition to self-handicapping, many adolescents engage in avoidance of help seeking when they notice the need for help with their academic work but do not actively seek it (Newman, 1990; Newman & Goldin, 1990). The need for help may also be perceived by these students as a threat to self-worth. They are concerned with negative judgments from both their teachers and classmates regarding their abilities (A. M. Ryan, Pintrich, & Midgley, 2001).

Finally, some students tend to avoid novel approaches to solving problems and accomplishing learning tasks due to the fear that they may make mistakes and appear unable (Turner et al., 2002). Because trying new ways of doing work often involves challenge, these students may feel that their abilities are being evaluated when developing novel approaches to learning. Given that these maladaptive strategies not only undermine students' performance but also limit their ability to learn, the present study attempted to explore the personal and contextual factors related to Taiwanese adolescents' use of avoidance strategies from the perspectives of self-determination and implicit theories of intelligence. It was hoped that the integration of these two prominent views would shed new light on the motivation behind students' avoidance behaviors within the Taiwanese classroom context.

Self-Determination Theory: Autonomous Versus Controlled Regulation

Self-determination theory (SDT; Deci & Ryan, 2000; R. M. Ryan & Deci, 2000) posits that motivated behaviors vary in the extent to which they are autonomous vs. controlled. Behaviors regulated by autonomous motivation involve the experience of volition and choice, whereas controlled behaviors are experienced as being pressured or coerced (Black & Deci, 2000; Williams & Deci, 1996). According to SDT, autonomy is a psychological need that is critical for optimal learning and achievement. Intrinsic motivation is regarded as the prototype of autonomy. Intrinsically motivated behaviors are undertaken out of interest and enjoyment inherent in the activity. In contrast, extrinsically motivated behaviors are carried out for the outcome that is separable from the activity itself. SDT differentiates extrinsic motivation into several types of regulation that vary in their degree of relative autonomy (R. M. Ryan & Deci, 2000; Vansteenkiste, Zhou, Lens, & Soenens, 2005).

External regulation is the least autonomous form of extrinsic motivation. When externally regulated, individuals' behaviors are controlled by such external

contingencies as rewards, punishments, and deadlines. Actions determined by these external forces are represented by an external perceived locus of causality (deCharms, 1968). With *introjected regulation*, a second type of extrinsic motivation, people engage in activities for the pursuit of self-aggrandizement or the avoidance of feelings of guilt and shame. Because these actions are regulated by internal pressure, they are also experienced as coerced and represented by an external perceived locus of causality. Accordingly, introjected regulation is often combined with external regulation to form a controlled motivation composite (e.g., Vallerand, Fortier, & Guay, 1997; Vansteenkiste et al., 2005). Finally, *identified regulation* occurs when the individual identifies with the value of an activity and thus accepts regulation of the activity as his or her own. Whereas identified regulation is considered by SDT to be a form of extrinsic motivation, it is relatively volitional and in this sense close to intrinsic motivation. Hence, this type of regulation is often combined with intrinsic motivation to form a composite of autonomous motivation (e.g., Black & Deci, 2000; Vansteenkiste, Lens, De Witte, De Witte, & Deci, 2004; Vansteenkiste et al., 2005). A variety of previous studies have shown the advantages of autonomous compared with controlled motivation for learning. Autonomous motivation has been associated with higher perceived academic competence (Fortier, Vallerand, & Guay, 1995), enjoyment of school (Miserandino, 1996), higher quality learning (Grolnick & Ryan, 1987), less superficial information processing (Vansteenkiste et al., 2004), less defensive coping styles (R. M. Ryan & Connell, 1989), lower drop out rates (Vallerand et al., 1997), and higher academic achievement (Black & Deci, 2000; Soenens & Vansteenkiste, 2005).

By differentiating autonomously motivated behaviors from behaviors regulated by controlled motivation, SDT can explain why people have true vs. contingent self-esteem (Deci & Ryan, 1995). Contingent self-esteem requires that the individual

continually matches some standards of excellence or lives up to some interpersonal or intrapsychic expectations to feel worthy. By contrast, true self-esteem is more securely based on a solid sense of self. With true self-esteem, one does not have to dutifully achieve some types of outcomes to feel like a good and worthy person. Deci and Ryan (1995) suggested that contingent self-esteem is linked to external and introjected regulation. Conversely, as one acts with an internal perceived locus of causality, the autonomously motivated behaviors promote a stronger sense of true self-worth. Because true high self-esteem reflects secure feelings of self-worth that do not depend on continual validation, individuals high in autonomy were found to exhibit less defensive coping to maintain self-esteem (Knee & Zuckerman, 1998).

Social Contexts and Self-Determination

SDT suggests that autonomy-supportive environments promote the development of volitional or self-governing functioning. Self-determined regulation, in turn, leads to optimal learning outcomes. In autonomy supportive contexts, an individual in a position of authority takes the other's perspective; allows opportunities for self-initiation and choice; provides a meaningful rationale for the requirement; and acknowledges the other's feelings; while minimizes the use of pressures and demands (Deci, Eghrari, Patrick, & Leone, 1994).

Previous empirical evidence has indicated that an autonomy-supportive teaching style is positively related to more school engagement (Assor, Kaplan, & Roth, 2002), better conceptual learning (Grolnick & Ryan, 1987) and school adjustment (Patrick, Anderman, & Ryan, 2002; Wentzel, 2002), as well as higher academic competence and achievement (Soenens & Vansteenkiste, 2005). Similar to the optimal effects of an autonomy-supportive teaching style, parental autonomy support has been found to be positively associated with such adaptive outcomes as children's greater identification for achievement tasks (Grolnick & Ryan, 1989), academic competence,

and school achievement (Allen, Hauser, Bell, & O'Connor, 1994), whereas it has been negatively related to learning problems, distress in emotion regulation (Grolnick, Deci, & Ryan, 1997), as well as avoidance of help seeking (A. M. Ryan, Gheen, & Midgley, 1998).

The Challenge to the Universality of Self-Determination Theory

Despite the consistently reported positive relation of autonomy-support to a variety of adaptive outcomes in the Western literature, however, several cross-cultural researchers (Chirkov & Ryan, 2001; Ford, 1992; Iyengar & de Voe, 2003; Markus & Kitayama, 1991, 2003; Triandis, 1995) have argued that the experience of autonomy is less encouraged by instructors and parents in Eastern societies. For instance, within the Chinese cultural context, high emphasis is placed on conformity and family interdependence because of the prevailing Confucian values. Individuals with such cultural background often feel obligated to maintain social harmony instead of exercising their personal choices (Chao & Tseng, 2002; Tseng, 2004). Accordingly, such concept central to Western psychology as autonomy may be less applicable in Eastern cultures (Chirkov & Ryan, 2001). The universality of SDT is therefore questioned by these cross-cultural researchers (Vanskeenkiste et al., 2005).

In response to the challenge, SDT distinguishes the concept of autonomy from that of independence. Instead of nonreliance on others implied in the concept of independence, autonomy reflects the experience of volition and choice. SDT contends that experiences of volition should bring forth optimal consequences across cultures (R. M. Ryan & Deci, 2003). The present study was hence intended to examine the contention of SDT with respect to the adaptive effects of experiences of autonomy on Taiwanese students' reports of avoidance strategies.

Implicit Theories of Intelligence and Avoidance Strategies

In addition to self-determined motivation, students' implicit theories of

intelligence have also provided a lens through which to understand their avoidance behaviors resulting from the attempt to protect self-esteem. 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, 1999; Dweck & Leggett, 1988; Hong, Chiu, & Dweck, 1995). Entity theorists believe that intelligence is a fixed permanent entity. Negative performance outcomes are likely to be interpreted by entity theorists as indicators of intellectual inadequacy. In contrast, incremental theorists believe that intelligence is malleable and can be increased. They are oriented toward developing their intellectual ability rather than diagnosing it. Therefore, incremental theorists are less likely than entity theorists to make negative ability inferences following failure (Dweck & Leggett, 1988; Henderson & Dweck, 1991). When the ability is perceived as fixed, poor performance easily gives rise to serious anxieties because of the implied negative evaluation of the self. These concerns may lead entity theorists to adopt avoidance strategies for concealing incompetence. Nonetheless, when intelligence can be increased, failure suggests the need for improvement through further attention and effort. For incremental theorists, it clearly is not sensible to sacrifice ability development to avoid a demonstration of incompetence (Dweck & Molden, 2005).

Prior evidence (Grolnick, 2001) has indicated a significant correlation between mothers' controlling behaviors (e.g., giving directives to her child on a task without the child's requesting them) and their children's entity theories. In the child's socializing environment, adults often make their love or esteem contingent on living up to some standards. As a consequence, the child is likely to internalize requirements of fulfilling adults' expectations and espouses an entity theory (Dweck & Molden, 2005). Put differently, being autonomy-supportive is speculated to be associated with lower levels of endorsement of an entity theory and thereby to ameliorate the

orientation toward avoidance strategies. These intriguing relations appear to provide fertile ground to be plowed (Dweck & Molden, 2005).

To sum up, the present study was devised to examine how Taiwanese junior high school students' perceptions of autonomy support from teachers and parents as well as autonomous vs. controlled motivation were related to their implicit theories of intelligence, and to determine the ability of these constructs to explain students' reports of avoidance strategies (i.e., self-handicapping, avoiding help seeking, and avoiding novelty). Specifically, the present research attempted to answer the following research questions: (a) Do students' perceptions of autonomy support from teachers and parents along with autonomous vs. controlled motivation predict their implicit theories of intelligence? (b) Do students' perceptions of autonomy support from teachers and parents, autonomous vs. controlled motivation, as well as implicit theories of intelligence predict their reports of self-handicapping, avoiding help seeking, and avoiding novelty? (c) After controlling for perceived autonomy support from parents, do students' autonomous vs. controlled motivation, implicit theories of intelligence, as well as reports of self-handicapping, avoiding help seeking, and avoiding novelty differ according to their perceptions of autonomy support from teachers?

Method

Participants

The participants included 461 eighth-grade Taiwanese students from sixteen classes in three junior high schools. Participants were drawn using a cluster sampling procedure. First, 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, sixteen

eighth-grade classes were randomly selected. The students in these classes were the participants in the current study. All of the school principals granted initial consent for data to be collected in their schools. The 224 girls (49%) and 237 boys ranged in age from 12 years, 10 months to 14 years, 1 month (M = 13 years, 6 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 (not at all true of me) to 5 (very true of me). 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.

Autonomous vs. Controlled Motivation. The Self-Regulatory Style Questionnaire-Academics (SRQ-A; R. M. Ryan & Connell, 1989) was employed to assess the extent to which students perceived themselves to be autonomously vs. externally motivated for school-related activities. Participants were required to

indicate their reasons for doing academic tasks such as homework and studying. These reasons were represented by the four subscales differentiated along a continuum of autonomy according to self-determination theory: external regulation (e.g., “because I’ll get in trouble if I don’t”; 9 items; α = .77); introjected regulation (e.g., “because I will feel bad about myself if I don’t do it”; 9 items; α = .86); identified regulation (e.g., “because I want to understand the subject”; 7 items; α = .86); and intrinsic motivation (e.g., “because I enjoy doing my homework”; 7 items; α = .86). Ryan and Connell (1989) used a mathematical model to test that these four types of regulatory styles were intercorrelated according to a quasi-simplex pattern. In a simplex, variables are ordered in terms of conceptual similarity, such that those sharing similar concepts correlate more highly than those that are hypothesized to be more discrepant (Guttman, 1954). According to Ryan and Connell (1989), the assessment approach offers such advantage over the traditional factor analytic approaches as preserving the integrity of various categories of regulation while displaying their interconnection. The validity of this measure in the Taiwanese sample has been sustained in d’Ailly’s study (2003).

As Vansteenkiste et al. (2005) pointed out, in the case of exploring effects of these forms of regulation through regression analyses, it may not be appropriate to enter all four self-regulatory styles simultaneously in the regression. Because the two controlled and the two autonomous motivation subscales are supposed to be highly correlated, suppression effects that may lead to unreliable and inconclusive results are likely to occur (Tacq, 1997). The creation of an autonomous and controlled motivation composite in such a case is therefore advised. Given that both the correlations between the two autonomous ($r = .66$, $p < .001$) and the two controlled motivation subscales ($r = .52$, $p < .001$) in the present study were rather high, in response to Vansteenkiste et al.’s suggestion, an autonomous motivation composite

was created by averaging the scores for identified and intrinsic motivation (α = .91 for items across the two scales), and a controlled motivation composite was formed by averaging the scores for external and introjected regulation (α = .52 for items across the two scales).

Perceived autonomy support from teachers. Students' perceptions of autonomy support provided by their teachers were assessed by the short version of the Learning Climate Questionnaire (LCQ; Williams & Deci, 1996). The scale has 6 items that measure the degree to which the students perceive the instructors as supporting their autonomy (e.g., "I feel that my instructor provides me choices and options"; α = .80). Higher scores represent a higher level of perceived autonomy support in the classroom context. To evaluate the assumption that these items represented a single underlying factor, 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, the 6 items were hypothesized to load onto one latent factor. Results suggested that this model represented an adequate fit to the data, χ^2 (7, N = 461) = 19.89, $p < .01$, $\chi^2/N = .04$, RMSEA (Root Mean Square Error of Approximation) = .06, GFI (Goodness of Fit Index) = .99, NFI (Normed Fit Index) = .98, NNFI (Non-Normed Fit Index) = .98, CFI (Comparative Fit Index) = .99, IFI (Incremental Fit Index) = .99, RFI (Relative Fit Index) = .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 above .90 was considered acceptable (Hu & Bentler, 1999).

Perceived autonomy support from parents. Students' perceptions of autonomy support provided by their parents were assessed by the child version of the Perceptions of Parents Scales (POPS; Grolnick, Ryan, & Deci, 1991). The scale

assesses children's perceptions of the degree to which their parents are autonomy supportive. It has 12 items, 6 mother items and then the same 6 items for fathers. Students' were required to respond right on the questionnaire by circling a letter in front of the one (out of four) description of a parent that is most like their own parents (e.g., response a: "Some mothers always tell their children what to do"; response b: "Some mothers sometimes tell their children what to do"; response c: "Some mothers sometimes like their children to decide for themselves what to do"; response d: "Some mothers always like their children to decide for themselves what to do." $\alpha = .70$). Each circled letter was then converted into a represented score (i.e., a = 1; b = 2; c = 3; d =4). Higher scores represent a higher level of perceived autonomy support in the family context. In the model tested in the confirmatory factor analysis, the 6 items for mothers were hypothesized to load onto one latent factor. The CFA yielded an excellent fit to the data, χ^2 (5, N = 461) = 3.94, $p > .05$, $\chi^2/N = .01$, RMSEA = .01, GFI = 1.00, NFI = .99, NNFI = 1.00, CFI = 1.00, IFI = 1.00, RFI = .98. The 6 items for fathers were also hypothesized to load onto a single latent factor in the tested CFA model. Results suggested that this model provided a reasonable fit to the data, χ^2 (5, N = 461) = 16.84, $p < .01$, $\chi^2/N = .04$, RMSEA = .07, GFI = .99, NFI = .97, NNFI = .96, CFI = .98, IFI = .98, RFI = .94.

Implicit theories of intelligence scale. Students' implicit theories of intelligence were assessed by the scale adapted from the Implicit Theories of Intelligence Scale for Children (Dweck, 1999). The scale is composed of two three-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 greatly change how intelligent you are"; $\alpha = .76$). 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 adequate fit for the proposed structure of the scale, χ^2 (17, N = 461) = 55.66, $p < .01$, $\chi^2/N = .12$, RMSEA = .07, GFI = .97, NFI = .97, NNFI = .97, CFI = .98, IFI = .98, RFI = .95.

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 = .79). In the CFA model, all the five items were hypothesized to load onto a single latent factor. Results showed that this model provided a good fit to the data, χ^2 (4, N = 461) = 6.96, $p < .05$, $\chi^2/N = .02$, RMSEA = .04, GFI = .99, NFI = .99, NNFI = .99, CFI = 1.00, IFI = 1.00, RFI = .98.

Avoiding help seeking. Students' tendency to avoid seeking academic help was assessed by the scale adapted from the questionnaires of Newman and Goldin (1990) as well as Turner et al. (2002). Avoidance of help seeking (7 items) refers to instances when students need help but do not seek it (e.g., "If the schoolwork is too hard, I just don't do it rather than ask for help"; α = .86). To test the validity of the scale, the seven items were hypothesized to load onto one latent variable in the CFA model. Results suggested that this model represented a reasonable fit for the proposed structure of the scale, χ^2 (13, N = 461) = 43.85, $p < .01$, $\chi^2/N = .09$, RMSEA = .07, GFI = .97, NFI = .98, NNFI = .98, CFI = .99, IFI = .99, RFI = .97.

Avoiding novelty. Students' tendency to resist novel approaches to academic work was assessed by a five-item scale taken from the Patterns of Adaptive Learning Survey (PALS; Midgley et al., 2000). Avoidance of novelty refers to preferences to

avoid novel ways of solving problems and doing schoolwork (e.g., "I don't like to learn a lot of new concepts"; α = .80). A confirmatory factor analysis was also run to examine the validity of this scale. In the model tested, all the five items were hypothesized to load onto one latent construct. Results showed that this model provided an acceptable fit to the data, χ^2 (4, N = 461) = 15.94, $p < .05$, $\chi^2/N = .03$, RMSEA = .08, GFI = .99, NFI = .98, NNFI = .97, CFI = .99, IFI = .99, RFI = .96.

Results

Regression Analyses

Descriptive information and correlations for study variables are displayed in Table 1. Results from the regression analyses are presented first for outcomes regarding students' implicit theories of intelligence, and then for their use of avoidance strategies. In these analyses, gender was entered first in the regression models. It turned out that gender failed to predict any outcome variable of interest. Across the analyses, the order of entry was assigned according to theoretical considerations. Predictors that were presumed to be causally prior were given higher priority of entry (Tabachnick & Fidell, 1996). 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 possibility of making a Type I error arising from completing a series of analyses with related outcomes (Wolters, 2004).

Hierarchical Regressions Predicting Implicit Theories of Intelligence

Incremental theory of intelligence. Tables 2 provides the results of the hierarchical regressions predicting students' implicit theories. In the first step of the analysis, students' perceptions of autonomy support provided by their teachers and parents (independent variables) were entered and explained a significant amount of variance (12%) in an incremental theory of intelligence (dependent variable), $F(2, 458) = 30.25$, $p < .001$. Students' perceived autonomy support from teachers positively

predicted the incremental theory of intelligence. Results from Step 2 indicated that adding autonomous and controlled motivation (IVs) increased the amount of variance explained by 8% for an incremental theory (DV), $F(4, 456) = 27.41$, $p < .001$. When other predictors were accounted for, students who reported higher levels of autonomous motivation tended to be incremental theorists. Perceived autonomy support from teachers remained a significant predictor of the incremental theory.

Entity theory of intelligence. Students' perceived autonomy support from teachers and parents (IVs) were entered in the first regression model and accounted for a significant amount of the variance (3%) in an entity theory of intelligence (DV), $F(2, 458) = 7.79$, $p < .001$. Perceived autonomy support provided by teachers and parents both predicted the entity theory negatively. Adding autonomous and controlled motivation (IVs) in Step 2 increased the amount of variance explained for an entity theory of intelligence (DV) by 6%, $F(4, 456) = 11.84$, $p < .001$. Autonomous motivation was a negative predictor of the entity theory of intelligence, while accounting for other predictors. In contrast, controlled motivation positively predicted the entity theory.

Hierarchical Regressions Predicting Avoidance Strategies

Self-handicapping. Tables 3 shows results from the regressions predicting students' reports of avoidance strategies. In terms of self-handicapping (DV), students' perceptions of autonomy support from teachers and parents (IVs) were entered in Step 1 and predicted a significant portion of the variance (4%), $F(2, 458) = 7.00$, $p = .001$. Perceived autonomy support provided by teachers and parents both predicted self-handicapping negatively. Results from Step 2 suggested that adding autonomous and controlled motivation (IVs) increased the amount of variance explained in self-handicapping by 5%, $F(4, 456) = 9.34$, $p < .001$. When other predictors were accounted for, autonomous motivation was a negative predictor of

self-handicapping, whereas controlled motivation positively predicted self-handicapping. In Step 3, both incremental and entity theories of intelligence (IVs) were entered. Adding these variables increased the amount of variance explained for self-handicapping (DV) by 10%, $F(6, 454) = 14.19$, $p < .001$. When other predictors were controlled for, students espousing an entity theory were more likely to be self-handicappers.

Avoiding help seeking. The amount of variance (11%) explained by students' perceived autonomy support from teachers and parents (IVs) in the first step of the analysis was significant for avoidance of help seeking (DV), $F(2, 458) = 28.49$, $p < .001$. Perceived autonomy support provided by teachers and parents both predicted help avoidance negatively. Adding autonomous and controlled motivation (IVs) in Step 2 increased the amount of variance explained for this type of avoidance strategy by 8%, $F(4, 456) = 27.55$, $p < .001$. When other variables were controlled for, autonomous motivation negatively predicted students' reluctance to seek help. By contrast, controlled motivation emerged as a positive predictor. In the final step of the model, students' implicit theories of intelligence (IVs) were included. Adding these variables increased the amount of variance explained by 11% for avoiding help seeking (DV), $F(6, 454) = 33.06$, $p < .001$. When other predictors were accounted for, students who endorsed the entity view of intelligence were more likely to avoid seeking academic help.

Avoiding novelty. The variables entered in Step 1 (i.e., perceived autonomy support from teachers and parents, IVs) predicted a significant amount of the variance (6%) in avoiding novelty (DV), $F(2, 458) = 14.36$, $p < .001$. Students with higher perceptions of autonomy support in the classroom context were less likely to avoid novelty while doing schoolwork. Also, perceived autonomy from parents predicted novelty avoidance negatively. Results from the second step of analysis indicated that

adding autonomous and controlled motivation (IVs) increased the amount of variance explained in novelty avoidance (DV) by 14%, $F(4, 456) = 28.42$, $p < .001$. When other predictors were controlled for, both autonomous and controlled motivation were significant predictors of avoiding novelty, but in opposite directions. In Step 3, implicit theories of intelligence (IVs) were included in the model. Adding these variables increased the amount of variance explained by 5% for novelty avoidance (DV), $F(6, 454) = 25.62$, $p < .001$. Results from this step showed that in addition to autonomous and controlled motivation, the entity theory of intelligence significantly predicted students' tendency to avoid novelty.

Mean Differences between Students Perceiving Different Levels of Autonomy Support in the Classroom Context

To determine the differences in key variables of interest between students perceiving high vs. low levels of autonomy support provided by their teachers, multivariate analysis of covariance (MANCOVA) was performed while including students' perceived autonomy support from parents as a covariate. By taking into account the likely confounding effects of perceived autonomy support in the family context, it was hoped that the effects of perceived autonomy support in the classroom setting on students' motivation, implicit theories of intelligence, and use of avoidance strategies would be detected with greater precision. To form the low/high categorical variables, students were clustered based upon their scores on perceived autonomy support from teachers. Those who scored above the 67th percentile (i.e., the top one-third of the scores) were identified as high-autonomy-support students, whereas students scoring below the 33rd percentile (i.e., the bottom one-third of the scores) were categorized as low-autonomy-support students. In total, 309 out of 461 students met the criteria, including 164 high-autonomy-support and 145 low-autonomy-support students. Table 4 presents the means and standard deviations

of the dependent variables according to these students' group membership.

Before the MANCOVA was run, preliminary ANOVAs had been performed to compare students of the three junior high schools on each of the variables examined. Using the Bonferroni method to correct for inflated probability levels associated with significance when conducting multiple tests (familywise $\alpha = .05$), no significant difference among students of the three schools was found. Additionally, *t* tests were performed to determine gender differences in the same variables. Bonferroni method was also employed when making the comparisons. Again, no gender difference in any of these investigated variables was found. Consequently, school and gender were not included as independent factors in the subsequent analyses.

Two assumptions for the MANCOVA 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 result of this test was not significant ($F = 1.65$, $p > .05$), suggesting the confirmation of this assumption. Additionally, the test for homogeneity of regression also yielded insignificant results. Hence, using a common regression coefficient to adjust for the covariate in all groups was appropriate. MANCOVA revealed significant effects for perceived autonomy support in the classroom context after students' perceptions of autonomy support from parents were controlled for, Hotelling's $t = .53$, $F(7, 300) = 22.49$, $p < .001$, $\eta^2 = .34$. Results of the univariate analyses indicated significant effects of perceived autonomy support from teachers on autonomous motivation, $F(1, 306) = 134.28$, $p < .001$, $\eta^2 = .31$; incremental theory of intelligence, $F(1, 306) = 40.95$, $p < .001$, $\eta^2 = .12$; avoidance of help seeking, $F(1, 306) = 25.76$, $p < .001$, $\eta^2 = .08$; and avoiding novelty, $F(1, 306) = 8.16$, $p < .01$, $\eta^2 = .03$. High-autonomy-support students scored significantly higher on autonomous motivation (adjusted $M = 3.18$ vs. adjusted $M = 2.22$) and incremental theory of

intelligence (adjusted *M*= 3.42 vs. adjusted *M* = 2.76) than did low-autonomy-support students. Conversely, low-autonomy-support students obtained significantly higher scores on avoidance of help seeking (adjusted *M*= 2.54 vs. adjusted *M* = 2.03) and avoiding novelty (adjusted *M*= 2.81 vs. adjusted *M* = 2.50) than did high-autonomy-support students. Evidently, students' autonomous motivation, incremental view of intelligence, as well as tendency to avoid help seeking and novelty varied as a function of their perceptions of autonomy support in the learning environment.

Discussion

The current study enhances our understanding of how constructs of SDT and implicit theories of intelligence are related to each other and to students' reports of avoidance strategies in the Taiwanese classroom context. As the present findings suggest, both students' self-regulatory styles (i.e., autonomous vs. controlled regulation) and implicit views of intelligence have unique and differential effects on their use of avoidance strategies. Autonomous motivation is associated with less employment of avoidance strategies, whereas controlled motivation and an entity theory are positively related to students' reports of avoidance strategies. Moreover, results of the present research lend support to the applicability of the SDT perspective on autonomy vs. control to the non-Western culture. Even in such a collectivistic society as Taiwan, the provision of autonomy support in both family and classroom contexts was inversely related to adolescents' tendency to adopt avoidance strategies. Below, several important findings are discussed.

The Relations between SDT Constructs and Implicit Theories of Intelligence

Results of hierarchical regression analyses indicate that both perceived autonomy support from teachers and autonomous regulation are positively associated with the incremental theory of intelligence. Altogether, SDT constructs (perceived autonomy

support along with personal autonomous regulation) accounted for 20% of the variance in an incremental theory. The amount of explained variance in this case is similar to findings of the study conducted by Pelletier, Fortier, Vallerand, and Briere (2002). In their study, it was found that almost 20% of the variance in Canadian competitive teenage swimmers' persistence could be accounted for by perceived coaches' autonomy support and their own intrinsic motivation. By contrast, students' perceptions of autonomy support from both teachers and parents, as well as their autonomous regulation are negatively related to the entity theory of intelligence. Nonetheless, the amount of the variance in an entity view explained by these SDT constructs is rather small (less than 10%), indicating that SDT constructs do not play a significant role in students' beliefs that intelligence is a fixed permanent entity.

Students with experiences of volition and choice are not pressured to meet adults' expectations to earn praise or recognition. They are not required to demonstrate their competence or intelligence by living up to some established standards. As expected, these students are less likely to endorse an entity view of intelligence.

Factors Related to Avoidance Strategies

Results from the hierarchical regressions indicate that SDT constructs and implicit theories of intelligence independently contribute to Taiwanese students' use of avoidance strategies. Perceived autonomy support from teachers and parents as well as autonomous regulation vs. controlled motivation only explained a fairly small amount of variance in self-handicapping (9%). Yet, these SDT constructs accounted for around 20% of the variance in both help avoidance and avoiding novelty. Clearly, compared to self-handicapping, students' tendencies to avoid seeking help with schoolwork and new methods of learning are more tightly linked to their experiences of autonomy. Vansteenkiste et al. (2005) found that the passive-avoidant behaviors of

Chinese college students studying in Belgium explained 17% of the variance in students' autonomous and controlled motivation. Findings of the present study again validate similar degree of effects of SDT constructs on such avoidance strategies as avoiding help seeking and avoiding novelty. When students engage in schoolwork out of intrinsic interest or self-determination, the concern with mastering new materials or skills is supposed to override other considerations such as defending the self. Hence, they may be less likely to avoid asking for academic help or resist new ways of learning due to fear of embarrassment from looking incompetent. In brief, results of the current study show that non-Western students can also benefit from autonomous or volitional functioning when it comes to addressing their avoidance behaviors, because the experiences of autonomy satisfy rather than forestall students' basic psychological need (Vansteenkiste et al., 2005).

SDT constructs aside, implicit theories of intelligence along also contribute to the explanation of Taiwanese adolescents' use of avoidance strategies. However, the amounts of the incremental variance are rather small, suggesting a relative minor role of this set of constructs in students' avoidance behaviors. Notably, a closer look at the amounts of variance explained by autonomous vs. controlled motivation along with the entity theory indicates differential strengths of association between these predicting variables and the predicted avoidance strategies. In terms of self-handicapping, the entity theory of intelligence alone accounts for the largest amount of variance (10%). In contrast, it is autonomous vs. controlled motivation that explains the largest amount of variance in avoiding novelty (14%). Put another way, the relative contributions of each set of predictors appear to vary with the nature of the avoidance strategies. Students espousing an entity theory are inclined to construe poor performance as an indicator of their incapability and thus likely to employ self-handicapping to deflect others' perceptions away from lack of ability should poor

performance occur (Urdan & Midgely, 2001). As for avoiding novelty, autonomous motivation may enable students to experiment with new methods of learning. Students are less likely to avoid novel approaches to solving problems under these circumstances. An implication that can be drawn from these findings is that when devising intervention plans to address students' tendency to use avoidance strategies, it is pivotal to take the nature of strategies into consideration.

Profiles of Students with Different Levels of Autonomy Support from Teachers and Implications for Classroom Practice

Results of MANCOVA show that irrespective of whether students perceive autonomy support in the family environment or not, those who perceive higher levels of autonomy support provided by teachers score higher on autonomous motivation and incremental theory of intelligence than do their counterparts perceiving lower levels of autonomy support in the learning environment. Moreover, students with higher levels of autonomy support from teachers are less likely to avoid seeking academic help and resist novel approaches to learning than students with lower levels of autonomy support from teachers. These findings underscore the powerful effects of perceived autonomy support provided by teachers on the cultivation of Taiwanese adolescents' adaptive achievement striving.

Consistent with the proposition of SDT, students' perceptions of autonomy support from teachers account for a fairly large amount of variance (31%) in their autonomous motivation. The explained portion is too significant to overlook, suggesting the considerable effects of the provision of autonomy support in the classroom context on Taiwanese adolescents' adaptive self-regulation. In addition to the enhanced self-determined functioning, students who perceive higher levels of autonomy support from teachers are inclined to be incremental theorists. The vast majority of research on the socialization of implicit theories of intelligence has

focused on how the messages that parents convey to their children may give rise to implicit views of intelligence (e.g., Dweck & Lennon, 2001; Grolnick, 2001; Smiley, Coulson, & Van Ocker, 2000). The present findings instead illuminate the critical role of autonomy support from teachers in students' endorsement of an incremental theory, while minimizing the potential confounding influence of parents' rearing practices.

The profiles of students with different levels of autonomy support documented in the current research show that adolescents are attuned to cues from the environment that shape the beliefs and strategies they will apply to a given situation (Grant & Dweck, 1999; Hong & Chiu, 2001). Moreover, interventions to address avoidance strategies would profit from altering the theories from which defensive coping may arise rather than simply attempting to modify strategies directly. For instance, the belief that competence can be enhanced and improved through one's effort cultivated in the autonomy-supportive classroom context may lead the student to view asking for academic help or trying new approaches to learning as important ways to develop ability. Consequently, as results of MANCOVA indicate, the adolescent's inclination to avoid seeking help or to resist novel approaches to accomplishing learning tasks may be reduced.

Limitations and Future Research

Although the results of the current study provide significant information about factors related to avoidance strategies as well as insights into teacher practices, there are several limitations that need to be addressed in future research. First, the present study examines the effects of students' perceptions of autonomy support in both the classroom and family contexts on their use of avoidance strategies. Another context that may affect avoidance behaviors, in particular during adolescence, is the peer context. Adolescents are particularly concerned with how they look to peers (Berndt, 1979; Coleman, 1961). Put differently, students may be more likely to employ

avoidance strategies to protect self-worth when being judged by peers than when being judged by adults (Urdan & Midgley, 2001). Future research focusing on the impact of the peer context is expected to provide additional insight into the influences of social contexts on students' avoidance behaviors.

Second, in addition to avoidance strategies, different emotions also appear to arise more readily within particular implicit theories of intelligence. It has been found that anxiety tends to arise more quickly from an entity view, while enjoyment seems to last longer within the incremental system (Lewis & Sullivan, 2005). Little attention has been paid to the influences of implicit theories of intelligence on emotions and moreover, their regulation. This line of research is supposed to strengthen the much-needed link between the study of emotion and the study of motivation (Dweck & Molden, 2005).

Third, the present research assessed students' tendency to employ avoidance strategies at a single point in time. If the use of avoidance strategies is a dynamic process related to contextual factors, however, longitudinal studies are needed to capture fluctuations in students' perceptions of autonomy support from adults and their effects on avoidance behaviors over time and across contexts (i.e., when students change classrooms). This method would allow researchers to explore the stability of the tendency to adopt avoidance strategies while determining the influence of different contexts on avoidance behaviors with greater precision. Such research has the potential to help teachers to create a classroom climate of self-determination that ameliorates maladaptive patterns of learning.

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Table 1

Descriptive Statistics and Correlations for Study Variables (N =461)

Variable	1	2	3	4	5	6	7	8	9
1. Autonomy support from teachers	__								
2. Autonomy support from parents	.22**	__							
3. Autonomous motivation	.58**	.21**	__						
4. Controlled motivation	.33**	-.10*	-.08	__					
5. Incremental theory	.34**	.09*	.43**	08	__				
6. Entity theory	-.13**	-.15**	-.16**	.16**	-.36**	__			
7. Self-handicapping	-.12**	-.15**	-.19**	.08	-.15**	.35**	__		
8. Avoiding help seeking	-.30**	-.20**	-.36**	.04	-.22**	.43**	.49**	__	
9. Avoiding novelty	-.19**	-.19**	-.34**	.11*	-.17**	.34**	.31**	.56**	__
M	3.11	2.53	2.74	2.55	3.12	2.00	1.85	2.26	2.62
SD	.82	.47	.81	.66	.89	.92	.76	.85	.93

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

Table 2

Summary of Hierarchical Regression Analyses Predicting Implicit Theories of Intelligence (N= 461)

	Incremental theory			Entity theory		
Variable	B	β	R^2	B	β	R^2
Step 1						
Perceived autonomy support from teachers	.37	.34***	.12***	-.12	-.11**	.03***
Perceived autonomy support from parents	.03	.02		-.25	-.13**	
Step 2						
Perceived autonomy support from teachers	.16	.14**	.20	-.10	-.09	.09
Perceived autonomy support from parents	.02	.01	(.08***)	-.12	-.06	(.06***)
Autonomous motivation	.38	.34***		-.23	-.20***	
Controlled motivation	.00	.00		.37	.27***	

Note. Values in parentheses are changes in R^2.

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

Table 3

Summary of Hierarchical Regression Analyses Predicting Avoidance Strategies (N= 461)

	Self-handicapping			Avoiding help seeking			Avoiding novelty		
Variable	B	β	R^2	B	β	R^2	B	β	R^2
Step 1									
Perceived autonomy support from teachers	-.10	-.11**	.04***	-.28	-.27***	.11***	-.18	-.16**	.06***
Perceived autonomy support from parents	-.19	-.12**		-.26	-.14**		-.30	-.16**	
Step 2									
Perceived autonomy support from teachers	-.03	-.03	.09	-.17	-.16**	.19	-.02	-.02	.20
Perceived autonomy support from parents	-.11	-.07	(.05***)	-.14	-.07	(.08***)	-.13	-.06	(.14***)

Autonomous motivation	-.22	-.24***		-.36	-.34***		-.50	-.44***	
Controlled motivation	.21	.19***		.29	.23***		.42	.30***	
Step 3									
Perceived autonomy support form teachers	-.01	-.01	.19	-.14	-.14**	.30	-.01	-.01	.25
Perceived autonomy support from parents	-.08	-.05	(.10***)	-.09	-.05	(.11***)	-.09	-.05	(.05***)
Autonomous motivation	-.18	-.18***		-.31	-.29***		-.47	-.41***	
Controlled motivation	.12	.11**		.17	.13**		.32	.23***	
Incremental theory	.02	.03		.06	.05		.06	.06	
Entity theory	.26	.31***		.34	.36***		.26	.26***	

Note. Values in parentheses are changes in R^2.

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

Table 4

Differences between Students Perceiving Different Levels of Autonomy Support from Teachers

	High-autonomy-support (*n* = 164)		Low-autonomy-support (*n* = 145)		*F*
Variable	*M*	*SD*	*M*	*SD*	(Univariate Analyses)
Autonomous motivation	3.20 (3.18)	.76	2.19 (2.22)	.67	134.28***
Controlled motivation	2.34 (2.31)	.72	2.27 (2.26)	.59	3.55
Incremental theory	3.42 (3.42)	.84	2.75 (2.76)	.91	40.95***
Entity theory	1.89 (1.92)	.91	2.17 (2.14)	1.02	3.86
Self-handicapping	1.73 (1.75)	.63	1.94 (1.93)	.84	4.15

Avoiding help seeking	2.00	.74	2.57	.97	25.76***
	(2.03)		(2.54)		
Avoiding novelty	2.46	.93	2.85	.96	8.16**
	(2.50)		(2.81)		

Note. Means within the parentheses were adjusted for the covariate.

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

赴國外研究心得報告

計畫編號	NSC 96-2410-H-004-017
計畫名稱	從「自我決定論」及「意義系統論」探究影響逃避策略使用之相關因素
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	8/9/2008~8/19/2008
國外研究機構	美國哈佛大學

工作記要：本段期間之工作主要分為兩大部分：一為參加美國心理學會年會；另一則為探訪位於波士頓附近的哈佛大學，尋找研究相關素材。有關參加美國心理學會年會之心得，已詳述於出席國際會議心得報告中；在這部分的工作上，除了出席研討會發表論文外，研究者亦利用參加此一大型心理學研討會之機會，仔細審視會場上各個出版重要心理學論著的出版商所展示之新近出版品。研究者所購得之 Handbook of Approach and Avoidance Motivation，是今年才出版的重要著作。研究者過去數年深入探究小學及國中生使用各類課業逃避策略背後的動機歷程，對趨向與逃避動機有相當程度的領會，亦將這些領會進一步與完美主義相關研究結合，構想出即將執行的檢視適應性（趨向動機）與不適應性（逃避動機）完美主義對國中生成就相關歷程影響之研究計畫，如今有了這本新書作為參考資料，非常期待可以藉此提供執行研究時更加豐富的視角（例如教育心理學較少碰觸的個人生理變項，本書有多達一百多頁的專章探討神經生理學與神經生物學對於趨向與逃避動機的研究及了解，有助於理解受試者個人生理特質在完美主義的表現上所扮演之角色）。

另一部分的工作內容，則是參訪哈佛大學的圖書館及周邊重要書店，尋找研究相關資料。在這些尋訪中，研究者發現目前心理學界對於完美主義的探究，仍多囿限於臨床心理學的範圍，若以專書而言，大抵以實務治療的工作手冊為主。換言之，從臨床心理學的觀點而論，完美主義仍被視為一種具心理病理傾向的特質。這樣的看法只能支持研究者即將執行的研究計畫有關「不適應完美主義」這一部分。有趣的是，雖然針對完美主義此一研究主題所搜尋的資料，以矯治不適應性的角度出發居多，但因應正向心理學風潮的興起，書店中心理類別的書架上，出現不少以正向心理學為主題的新書。其中包括歷史最久、書籍種類最齊的「The Coop」及哈佛知識份子最常流連的獨立書店「Harvard Book Store」均不約而同推薦好幾本正向心理學的書籍，並將其置於書店中的醒目位置，反映了普羅大眾在這方面的需求。學術界應重視這樣的現象，除了探究心理病理的成因及矯治外，也應開始更積極地以嚴謹的研究設計，檢視正向心理學相關變項對於促進個體心理福祉與生活品質之效應。研究者從閱讀這些最新出版的心理學類書籍中獲得此一體會，也更加確定將於教育場域中探究影響「適應性」完美主義的個人及社會情境因素這樣的研究方向，應可為長久以來受限於臨床心理學傳統的完美主義相關研究，帶來值得注意的突破。

行政院國家科學委員會補助國內專家學者出席國際學術會議報告

2007 年 8 月 27 日

附件三

報告人姓名	施淑慎	服務機構及職稱	國立政治大學師資培育中心 副教授
時間 會議 地點	8/17/2007 ~ 8/20/2007 美國舊金山	本會核定 補助文號	臺會綜二字第 0 九六 00 四 00 五三號
會議名稱	（中文）2007 年美國心理學會年會 （英文）The 2007 Annual Convention of the American Psychological Association		
發表論文題目	（中文）智力內隱理論在兒童學習上所扮演之角色 （英文）The Role of Implicit Theories of Intelligence in Children’s Learning		

報告內容應包括下列各項：

一、參加會議經過

本論文之發表形式為壁報論文，論文發表時間為 1:00-1:50 pm, 8/18/2007，場次主題為 Psychological Constructs，地點為 Moscone Center, Exhibit Level-South Building, Halls ABC, San Francisco, USA，與本場次之論文主題相關之領域為 Divisions 15 & 16。本場次共有 25 篇壁報論文發表，研究主題涵括成就目標以及內在與外在工作價值、工作記憶與後設理解精確度之個別差異、大學生科學學習動機上之結構方程模式、成就目標與希望對學生行為之預測、多元成就目標複雜性之紀錄、完美主義、成就動機與心理調適間之關係、成人學習者之自我效能信念與目標取向之檢驗、以及大學生之學業動機與人格特質間關係之檢驗等。就本場次之論文而言，以成就目標為主題之研究仍佔最多數，顯見該主題仍相當受到教心領域研究者之重視。研究者除參與論文發表之外，亦觀摩其他場次壁報論文之發表，並參與一些以動機、情緒調節和學習歷程間關係之探討為主題之座談會。此外，研究者亦花相當多時間瀏覽各出版社在會場所展示之心理學相關出版品，留意最新之圖書資訊以及量化資料處理軟體。

二、與會心得

（一）由於研究者所發表之論文與其他相關研究最主要的差異，在於本研究探討了同時相信「智力增加論」與「智力實體論」的學生，在課業求助及其他成就相關歷程上之情形，而這類學生之所以抱持兩種看似矛盾之智力內隱理論，與臺灣學生在社會化的歷程中所內化的價值取向息息相關。因此某位研究同好在閱讀本論文後，與研究者討論文化對個體學習歷程之影響。根據他的觀察，亞裔學生在美國定居的世代愈久，價值觀愈傾向美國化，亞裔文化重視課業表現之價值取向在個體學習上之效應也就愈趨薄弱。因此在探究個體的學習歷程時，文化脈絡的影響絕對是不容忽視之重要因素。

（二）另一位研究同好對於本研究所使用部分改編自英文量表之測驗工具，在改編為中文量表後，與原文量表在信效度上是否存在差異感到興趣。建議應將經過分析後因信效度不高而刪去之題項列出，並予以討論，比較刪去與保留題項兩者間所反映之構念其間的差異，檢視修改後之量表所測量到之構念，是否仍與原量表所欲測量之構念一致。提問者根據其個人在日本從事研究的經驗，發現即使依照量表翻譯之規準，將英文量表譯成日文，施測後之信效度分析結果仍顯示：有些題項與原量表所欲測量之主要構念間相關不高。然而若是將這些相關不高的題項悉數刪除，不免會思考由所剩題項組成之量表，與原量表所測的是否為相同之構念？若否，則有必要進一步審視及討論經過刪題後所形成之新研究變項。這位朋友的經驗與睿見對研究者而言，是非常精闢的提醒，研究者將在日後的研究中，更加留意量表改編的相關細節。

三、攜回資料名稱及內容

研究者於大會安排的書展中，購得兩本專業書籍。一為 Michael Kernis 所編輯之”Self-Esteem: Issues and Answers”，本書為 2006 年所出版之新書，集合了心理學界研究自尊此一主題之重要學者之論文，共分五大部分，分別為「自尊的定義與測量」、「自尊的要素與發展」、「自尊與心理功能」、「自尊與社會脈絡」以及「自尊的研究方向」。這五部分的論文總共回答了 56 個關於自尊此一主題之問題。研究者由於近年來專注於探討學生運用課業逃避策略以保護自尊的心理歷程，相信本書將為個體啟動逃避策略的心理機制，提供非常深入之洞見。

第二本書則為由 Paul Silvia 所著之”How to Write a Lot: A Practical Guide to Productive Academic Writing”。本書為美國心理學會於 2007 年出版之論文寫作工具書。作者在書中教導讀者如何寫作、投稿及修改學術論文，並以其在情緒心理學方面之專業知識，在書中探討如何克服論文寫作之動機障礙，為一相當實用之論文寫作指南，本書在本次書展中相當暢銷。

The Role of Implicit Theories of Intelligence in Children's Learning

Shu-Shen Shih

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表 Y04

The Role of Implicit Theories of Intelligence in Children's Learning

Statement of the Problem

The primary purpose of the present study was to determine the role of implicit theories of intelligence in a number of Taiwanese young adolescents' achievement-related characteristics including avoidant help-seeking tendencies, achievement goal orientations, and perceptions of the classroom goal structure. Cross-cultural studies on children's development and learning have found differences in achievement-related behaviors between Asian and Western students (Stevenson, Stigler, Lee, & Lucker, 1985; Sue & Okazaki, 1990). Owing to the predominant cultural norm, Taiwanese students are likely to hold both entity and incremental theories, the two seemingly contradictory beliefs about intelligence at the same time (Hong, 2001). The culturally prescribed belief in hard work encourages Taiwanese students to adopt the view that effort enhances ability. Put differently, Taiwanese students are socialized to become incremental theorists (Salili & Hau, 1994). However, at the same time, these students may also believe that intelligence is a fixed entity. The belief that people with high ability would not need much effort to succeed is reflected in a popular Chinese saying that "hard work may compensate for ineptitude." Within the Taiwanese classroom context, endorsement of an incremental view of intelligence may coexist with a belief in an entity view (Hong, 2001). Through studying children's beliefs about intelligence in this context, the present study attempted to address the following research question: Do children's attitudes and behaviors related to help avoidance, personal goal orientations, and perceptions of the classroom goal structure differ according to their implicit theories of intelligence (i.e., incremental theory, entity theory, and combined theory)?

Subjects Used

The participants included 298 sixth-grade students from eleven classes in four elementary schools in the northern part of Taiwan. The 143 girls (48%) and 155 boys ranged in age from 10 years, 3 month to 12 years, 7 months (M = 11 years, 6 months). The school districts were primarily middle class in terms of socioeconomic status. All of the participants were Taiwanese.

Procedure

The data were collected at the beginning of the year in sixth grade (September). Students were required to fill out a few questionnaires including the implicit theories of intelligence scale (Dweck, 1999), the attitudes and behaviors regarding help avoidance questionnaire (Newman & Goldin, 1990; Ryan & Pintrich, 1997), the achievement goals questionnaire (Elliot & Church, 1997), and the perceived classroom goal structures scale (Anderman & Midgley, 2002) during regular class time. Two trained research assistants were in each class for the data collection. One research assistant read the items aloud, and the other one walked around the room to check for skipped items and ensure quality responses.

Results

To determine the differences in key variables of interest among students endorsing different views of intelligence, children were identified as entity theorists, incremental theorists, and combined theorists based on their scores on the implicit theories of intelligence scale. A student was identified as the incremental or entity theorist only if he or she was above the mean on one theory and below the mean on the other theory. Students who scored above the mean on both incremental and entity theories were identified as combined theorists. MANOVA revealed significant effects for implicit theories about intelligence, Wilks Λ = .63, $F(20, 424) = 5.52$, $p < .001$, $\eta^2 = .21$. Results of the univariate analyses of the main effects of implicit theories of intelligence are reported below.

Attitudes and Behaviors Related to Help Avoidance

The univariate test indicated significant effects on students' attitudes toward help avoidance, $F(2, 221) = 15.79$, $p < .001$, $\eta^2 = .13$. Post hoc Tukey analysis showed that incremental theorists (M = 2.28) scored significantly lower on attitudes toward help avoidance than did entity and combined theorists (Ms = 2.82 and 2.56, respectively). In terms of help-avoidance behaviors, results of the univariate analysis were significant as well, $F(2, 221) = 21.22$, $p < .001$, $\eta^2 = .16$. Post hoc analysis suggested that incremental theorists (M = 2.14) scored significantly lower on help-avoidance behaviors than did combined theorists (M = 2.43). Moreover, combined theorists were significantly less likely to report help-avoidance behaviors than entity theorists (M = 2.75).

Achievement Goal Orientations

表 Y04

Results of the univariate analysis showed significant effects on children's personal mastery goal orientations, $F(2, 221) = 22.18$, $p < .001$, $\eta^2 = .17$. Tukey analysis indicated that incremental theorists ($M = 4.02$) reported significantly higher levels of mastery goal orientation than did combined theorists ($M = 3.61$). Additionally, combined theorists scored significantly higher on mastery goal orientation than did entity theorists ($M = 3.24$). The univariate test also revealed significant effects on performance-avoidance goal orientation, $F(2, 221) = 8.57$, $p < .001$, $\eta^2 = .07$. Both entity ($M = 2.96$) and combined ($M = 3.02$) theorists scored significantly higher on performance-avoidance orientation than did incremental theorists ($M = 2.60$).

Perceptions of the Classroom Goal Structure

Results of the univariate analysis of the main effects of implicit theories of intelligence were significant for mastery goal structure, $F(2, 221) = 12.04$, $p < .001$, $\eta^2 = .10$. Tukey analysis showed that incremental theorists ($M = 4.05$) reported significantly higher perceptions of a mastery goal structure than did entity ($M = 3.47$) and combined ($M = 3.63$) theorists. As to performance goal structure, the main effects of implicit theories about intelligence did not reach significance at the univariate level.

Conclusions

The various profiles documented in the current study provide a complete picture of the relations between implicit theories of intelligence and a variety of Taiwanese children's achievement-related characteristics. In general, incremental theorists displayed the most adaptive achievement-relevant profile. Combined theorists tended to show similar patterns of learning to those of entity theorists. It appears that the influences of an entity view of intelligence on the combined theorists' achievement-striving were stronger than those of an incremental view. All in all, Taiwanese students' crucial achievement-related characteristics tended to vary as a function of their views about intelligence.

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