

Positive and Negative Perfectionism Among Chinese Gifted Students in Hong Kong: Their Relationships to General Self-Efficacy and Subjective Well-Being

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This study evaluated the viability of using a self-report instrument to assess separately the positive form and negative form of perfectionism among 317 Chinese gifted students in Hong Kong. These students tended to endorse positive perfectionism more than negative perfectionism. Positive and negative perfectionism were also found to relate differentially to life satisfaction and positive affect, as well as negative affect—the three components of subjective well-being. Although positive and negative perfectionism could be inferred to impact directly on subjective well-being, the mediating role of general self-efficacy in the relationships between perfectionism and subjective well-being was also suggested. Implications of the findings for future research on perfectionism scale development and on the complex relationships among positive and negative perfectionism, general self-efficacy, and the three components of subjective well-being are discussed.

Over the years, diverse attributes or traits have been suggested to characterize giftedness in children. These include the uneven or asynchronous development of intellectual and emotional areas, heightened sensitivity, feeling different, and emotional intensity (Janos & Robinson, 1985; Lovecky, 1992; Roeper, 1982; Schuler, 2000). Among the diverse attributes, perfectionism is recognized as a major characteristic because of its role in the emotional health of gifted students (Kerr, 1991; Silverman, 1993, 1999). Invariably, perfectionism has been examined primarily from a pathological perspective as a negative characteristic that must be eliminated if gifted students are to function successfully (see Schuler, 2000; Siegle & Schuler, 2000). Specifically, the notion that perfectionism and giftedness are related is based on clinical observations and findings from qualitative stud-

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ies (e.g., Ford, 1989; Hollingworth, 1926; Karnes & Oehler-Stinnet, 1986; Lovecky, 1994). It is noted that perfectionistic tendencies could cause emotional upheaval, feelings of worthlessness, and depression when gifted students fail to live up to unrealistic expectations, and they might also make some gifted students more vulnerable to underachievement because they do not submit work unless it is perfect (see Schuler, 2000).

The conceptualization of perfectionism as negative or pathological has its basis in research studies with adults (see Flett & Hewitt, 2002; Shafran & Mansell, 2001). Perfectionistic strivings are suggested to be associated with depression (e.g., Blatt, 1995; Cox, Enns, & Clara, 2002; Hewitt & Dyck, 1986; Hewitt, Flett, & Ediger, 1996), eating disorders (e.g., Brouwers & Wiggum, 1993; Pearson & Gleaves, 2006; Toner, Garfinkel, & Garner, 1986), insomnia (e.g., Lundh, Broman, Hetta, & Saboonchi, 1994; Vincent & Walker, 2000), migraine (e.g., Brewerton & George, 1993), obsessive compulsive disorder (e.g., Ferrari, 1995; Frost & Steketee, 1997), psychosomatic disorders (e.g., Forman, Tsoi, & Rudy, 1987), Type A coronary-prone behavior (e.g., Flett, Hewitt, Blankstein, & Dynin, 1994), and suicide (e.g., Adkins & Parker, 1996; Hamilton & Schweitzer, 2000; Hewitt, Flett, & Turnbull-Donovan, 1992). Despite the evidence supporting the link, it could be argued that such associations do not lead to the conclusion that pathological conditions are directly caused by perfectionism or that perfectionism is inherently destructive among gifted students.

Indeed, there is suggestive evidence from some research studies that the presence of pathological perfectionism might not be disproportionately more in the gifted (see LoCicero & Ashby, 2000; Parker, 2000; Parker & Mills, 1996). Moreover, many researchers now believe that perfectionism exists on a continuum of behaviors and thoughts and has positive, or healthy, and negative, or unhealthy, aspects (Roedell, 1984; Shuler, 2000; Silverman, 1999). For example, Hamachek (1978) distinguished normal from neurotic perfectionism by suggesting that perfectionism could be viewed as a positive personality trait that enables a student to strive for excellence or as a negative personality trait characterized by neurotic and obsessive-compulsive behaviors. Apart from behaviors, thinking about behavior also distinguishes normal from neurotic perfectionists. Normal

perfectionists view order and organization as important in achieving excellence and allow themselves to fail and to be imperfect, whereas neurotic perfectionists are preoccupied with avoiding mistakes and never feel that their efforts are good enough (Shuler, 2000). In summary, it seems that perfectionism could be conceptualized to relate to high personal standards, and its positive or healthy form focuses on a realistic striving for excellence, whereas its negative or unhealthy form focuses on a rigid adherence to personal high demands, as well as a preoccupation with the avoidance of mistakes.

Parallel to the biases in considering perfectionism from the pathological perspective, the assessment of perfectionism generally focuses on the negative aspect of perfectionism. For example, Burns (1983) developed a scale that was used in the 1980s, but its unidimensional focus on personal standards and concern over mistakes limit its use. Emphasizing the multidimensionality and interpersonal aspects of perfectionism, Hewitt and Flett (1989, 1991) developed the 45-item Multidimensional Perfectionism Scale (MPS) that assesses self-oriented, other-oriented, and socially prescribed perfectionism. Self-oriented perfectionism focuses on excessively high standards, other-oriented perfectionism examines an individual's expectations of others, and socially prescribed perfectionism addresses the perceptions of standards set by others. Accordingly, perfectionism not only has an influence on the demands one expects of oneself but also on the demands one expects of others. Similarly, Frost and his colleagues also emphasized the multidimensional nature of perfectionism and developed a 35-item multidimensional questionnaire, Frost Multidimensional Perfectionism Scale (FMPS), which examines the intrapersonal nature of perfectionism (Frost, Martin, Lahart, & Rosenblate, 1990). Specifically, FMPS assesses six major dimensions: concern over making mistakes, high personal standards, the perception of high parental criticism, the doubting of the quality of one's actions, the perception of high parental expectations, and a high preference for order and organization (see also Stober, 1998). Thus, the evidence suggested that perfectionism is a complex, multidimensional construct that has distinct aspects worthy of further investigation in research studies (see Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stumpf & Parker, 2000; Suddarth & Slaney, 2001).

Despite the recognition of the multidimensionality of perfectionism in MPS and FMPS, the negativity bias is still evident in both instruments. For example, researchers have shown great interest in and explored the differential associations of self-oriented, other-oriented, and socially prescribed perfectionism in MPS with pathological symptoms such as depression (e.g., Hewitt & Flett, 1991, 1993; Hewitt et al., 1996) and the close relationship between the concern-over-mistakes dimension of the FMPS and symptoms of psychopathology (Frost et al., 1990). In contrast, positive perfectionism and its relationships with emotional well-being has rarely been the focus of research studies, and positive and negative forms of perfectionism are not clearly distinguished in the two instruments. Perhaps, one might have to infer the separation of normal and neurotic perfectionists from the profile of scores on the dimensions assessed by the instrument. Accordingly, a normal or healthy perfectionist might score high on order and organization and low on concern over mistakes, and a neurotic perfectionist might have the reverse profile.

With a view to assess positive and negative perfectionism as two distinct constructs among Chinese gifted students in Hong Kong, this study reported on the development of a Chinese instrument that assesses positive or healthy perfectionism as well as negative or unhealthy perfectionism and sought to relate the two distinct constructs to external measures of emotional well-being in students. Specifically, in line with the conceptualization of positive psychology, it was deemed appropriate to choose measures of subjective well-being rather than measures of psychopathology.

The study of subjective well-being emerged in part as a reaction to the overwhelming emphasis on psychopathology and negative states in psychology (see Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Robbins & Kliewer, 2000). Subjective well-being could be broadly conceptualized to include people's emotional responses, domain satisfactions, and global judgments of life satisfaction. Rather than treating it as a single specific construct, researchers have conceptualized subjective well-being as having separate and distinct constructs or components that need to be understood and studied in their own right. Diener (1984), in his classic review of the subjective well-being literature, has found considerable empirical evidence to support a tripartite model of subjective well-being, referring to a cognitive aspect

of life satisfaction and an affective aspect encompassing the presence of positive affect and the absence of negative affect. Specifically, people can provide judgments of their current, future, and past overall satisfaction level, and they can also provide judgments of such specific aspects of life as work, leisure, or family, connecting their evaluations to their affective states, be they pleasant or unpleasant. In this conceptualization, the three broad components are highly interconnected and cut across global and domain-specific dimensions (Lucas, Diener, & Suh, 1996).

Although it was generally assumed that personality and temperamental variables such as perfectionism could impact on subjective well-being, some researchers have maintained that individual differences factors more directly related to “agency” rather than to personality or temperament could be important determinants of subjective well-being (see Lightsey, 1996). Of particular interest is the variable of general self-efficacy that refers to a broad and stable sense of personal competence to deal efficiently with a variety of stressful situations (see Bandura, 1989). In this connection, Lightsey has argued that general self-efficacy is particularly instrumental in understanding subjective well-being, as it has been found to mediate coping responses (e.g., Eden & Aviram, 1993) and to directly relate to depression (e.g., Davis-Berman, 1990). Thus, it was of great interest to explore the relationships among perfectionism, general self-efficacy, and subjective well-being and examine whether general self-efficacy could mediate the impact of perfectionism on subjective well-being.

In this study, students’ positive perfectionism and negative perfectionism were first assessed using the newly developed Positive and Negative Perfectionism Scale (PNPS). Positive and negative perfectionism were then explored in their relationships with students’ subjective well-being defined by students’ report on life satisfaction and their experience of positive and negative affect. Specifically, life satisfaction was assessed by using the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985); the two affect states were assessed by using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and general self-efficacy was assessed by using the Schwarzer-Jerusalem General Self-Efficacy Scale (GSE; Schwarzer, 1993).

Method

Participants

A total of 317 primary (grades 2 to 6) and secondary (grades 7 to 12) Chinese students participated voluntarily in this study. These students (189 boys and 128 girls), aged 7 to 18 ($M = 11.62$, $SD = 2.42$), were nominated by their schools to participate in different enrichment courses provided at the Chinese University of Hong Kong over the summer months. In nominating students, schools were requested to recommend students who were judged to be either gifted intellectually (e.g., with a high IQ score) or academically (e.g., with outstanding performances in school subjects), or had demonstrated talents in other specific nonacademic areas. Although teachers nominated a total of 412 students, only 319 students responded positively to participate in this study, and only 317 students provided complete data in the study, yielding a valid response rate of 77%. In general, this sample of participants represented students with gifts or talents in different domains and students from a broad age range. Specifically, more than 90% of the students were of ages 9 or above, and about 88% of the students were between the ages of 9 and 16.

Measures

Positive and Negative Perfectionism Scale. The 12-item PNPS-12 was constructed for the purpose of this study. The development of the scale was based on rational item writing followed by empirical testing (Jackson, 1970). Based on the conceptualization that positive perfectionism refers to students' realistic striving for excellence and negative perfectionism refers to students' rigid adherence to perfection, as well as a preoccupation with avoiding mistakes, items (written in Chinese) were constructed to reflect the high demands that one expected from oneself, as well as from others. As a result, 10 items were written for positive perfectionism, with 5 self-oriented items and 5 other-oriented items. Similarly, 10 items were written for negative perfectionism, with 5 self-oriented and 5 other-oriented items. Special care was exercised to write negative perfectionism items

unrelated to psychopathology such as anxiety to avoid an inflation of relationship between perfectionism and negative affect. Six frontline schoolteachers with experience in working with gifted students were then enlisted to judge the item content of this 20-item scale, as well as conducted pilot testing of this initial version of the scale with a few of their students. Feedback from these teachers and their students was used to guide the revision of the scale. Consequently, items were dropped because of unclear language or if they were judged by teachers or students to reflect constructs related to perfectionism rather than perfectionism per se. However, items on procrastination were retained because they were judged to reflect delaying to avoid mistakes. Great care was also taken to ensure that simple language was used so that young students could easily understand these items. Specifically, to retain a balanced scale, four items were dropped from the positive perfectionism component, two from the self-oriented items and two from the other-oriented items. Similarly, four items were dropped from the negative perfectionism component. Thus, the final scale was the 12-item PNPS-12 to be used in this study.

In completing PNPS-12, students were requested to rate the degree to which they agreed that each of the items was descriptive of them by using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). It was thought that the relevant item responses could be summed to yield indices or scores reflecting positive and negative perfectionism. English paraphrasing of the Chinese items is included in Table 1.

Satisfaction with Life Scale. The 5-item SWLS assesses general life satisfaction as the cognitive aspect of subjective well-being. It reveals the individual's own judgment of his or her quality of life. The scale has demonstrated high internal consistency (Cronbach's $\alpha = .87$), excellent 2-month test-retest reliability ($r = .82$), and convergent and discriminant validity with other measures of subjective well-being, independent ratings of life satisfaction, self-esteem, clinical symptoms, neuroticism, and emotionality (Diener et al., 1985; Pavot & Diener, 1993). This study employed a Chinese version adapted for use with young Chinese students (e.g., Shek, Chan, & Lee, 1997). In completing the scale, students were requested to indicate their agreement on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A total score can be obtained by summing the five item responses, with higher scores reflecting more satisfaction with life.

Table 1
Summary of Varimax-Rotated Two-Factor Solution
of Perfectionism (N = 317)

Perfectionism items	Factor	
	1	2
Feeling disappointed in others not achieving high standards (11)	71	–
Missing opportunities because of not tolerating imperfections (12)	62	–
Feeling upset that others do not follow one's plan (5)	61	–
Expecting others to conform to high standards (2)	54	–
Delaying to start work to achieve excellence (10)	45	–
Avoiding mistakes by delaying work (7)	38	–
Respecting others' view on excellence (6)	–	67
Striving to be perfect in what one does well (1)	–	57
Setting high standards in one's talent area (4)	–	57
Believing that graduated practice makes perfection (8)	–	56
Planning for people to follow high standards (9)	–	55
Regarding it unfair to expect others to conform to one's high standards (3)	–	46

Note. Items with salient loadings of magnitude .30 or above are shown in descending order of magnitude for each individual factor, and decimals on loadings are omitted. The original item numbers in the scale are in parentheses.

Positive and Negative Affect Schedule. The PANAS consists of two scales, one on positive affect and one on negative affect. Each of the scales contains 10 emotion adjectives that are rated to indicate the respondent's general perception of the amount of time spent experiencing each emotion. The two scales are shown to be highly internally consistent (Cronbach's α above .85), largely uncorrelated, and stable at appropriate levels over a 2-month time period (Watson et al., 1988). This study used a Chinese version that was developed by replacing the English emotion adjectives with Chinese equivalents in simple language. Two English language teachers were enlisted to do the task, and any differences were resolved by discussion to arrive

at the final version used in this study. In completing the scales, students were requested to make their judgments of experiencing the emotions in general on a 5-point scale: 1 (*not at all*), 2 (*a little*), 3 (*moderately*), 4 (*quite a bit*), and 5 (*extremely*). A total score on positive affect and one on negative affect can be obtained by summing the ratings on the relevant items.

Schwarzer-Jerusalem General Self-Efficacy Scale. The 10-item GSE assesses a broad and stable sense of personal competence to deal efficiently with a variety of stressful situations. The scale has demonstrated high reliability (typical Cronbach's α ranges from .75 to .90) and convergent and discriminant validity, correlating positively with self-esteem and optimism and negatively with anxiety, depression, and physical symptoms (Schwarzer, 1993). This study employed the Chinese version that has been used in studies with the Chinese population (e.g., Chan, 2002; Zhang & Schwarzer, 1995). Great care has also been taken in the adaptation to ensure that simple language for young students was used. In completing the scale, students were requested to indicate their agreement on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A total score can be obtained by summing the 10 item responses, with higher scores reflecting greater general self-efficacy.

All the above measures employed in this study are in Chinese, and simple Chinese language is used to ensure that these measures can be used for participants of a broad age range.

Procedure

Students who volunteered to participate with the consent of their parents in this research project were requested to come to the university campus for assessment. These students were tested in groups of 30 to 50 on their perfectionism using PNPS-12, their general perceived self-efficacy using GSE, and their subjective well-being using SWLS and PANAS. Research assistants of the project were present in the testing sessions to explain verbally any items about which young students might have questions. It turned out that only about two young students asked for explanation of a few items.

Results

Dimensions of Perfectionism

To assess students' perfectionism, general self-efficacy, and subjective well-being, the relevant item responses of these students to the respective scales were first tabulated. A maximum likelihood exploratory factor analyses was then conducted on the 12-item correlation matrix of perfectionism to examine whether relevant items did fall appropriately into two orthogonal factors corresponding to positive and negative perfectionism. The initial estimation yielded three factors with eigenvalues exceeding unity, accounting for 53% of the total variance. The chi-square values computed for the evaluation of the lack of fit for one through four factor solutions were all significant ($p < .01$). The chi-square values were 453.69 ($df = 54$), 125.82 ($df = 43$), 76.76 ($df = 33$), and 42.97 ($df = 24$) for the one-, two-, three-, and four-factor solutions, respectively. The corresponding estimated variance accounted for was 17%, 34%, 40%, and 44%, respectively, for the four different factor solutions. Thus, a statistically adequate solution, one that yielded a nonsignificant chi-square, would require more dimensions beyond four factors. Because the model would be rejected by the chi-square statistic at a conventional alpha level if a large enough sample was used (see Browne & Cudeck, 1993), each of the four different factor solutions was examined for simple structure and interpretability. It was found that the two-factor solution was most interpretable, with the two factors interpretable as positive and negative perfectionism as originally intended. The three-factor and four-factor solutions had factors loaded saliently by one to two items and were less interpretable. Consequently, it was deemed appropriate to accept the two-factor solution as an adequate representation of the data on perfectionism, lending support to the construct validity of the two distinct aspects of perfectionism. Thus, the data supported that the relevant items could be summed to yield two separate scores on positive and negative perfectionism. The summary of the varimax-rotated two-factor solution of perfectionism is shown in Table 1.

Students' relevant item responses to PNPS-12, GSE, SWLS, and PANAS were summed to yield scores on positive and negative perfec-

tionism, general self-efficacy, life satisfaction, and positive and negative affect, respectively. Focusing on the mean scores of positive and negative perfectionism, the findings suggested that students tended to endorse positive perfectionism more than negative perfectionism. Support for these differences could be gleaned from the paired *t*-test, which indicated that the scores on positive and negative perfectionism were significantly different from each other with a relatively large effect size, $t(316) = 27.91, p < .001, \text{partial } \eta^2 = .71$.

Alternatively, in the absence of any normative standards, a score of 24 or above (a rating of an average rating of 4 or above on the 5-point scale) could be used to indicate that the respondents endorsed positive and/or negative perfectionism. Using this cutoff, it was found that a large percentage of students (69.7%) could be positive perfectionists whereas a small percentage of students (6.3%) could be negative perfectionists. Using a less rigorous cutoff score of 19 or above (a rating above an average rating of 3 on the 5-point scale), the respective percentages became 94.6% and 30.3%. Thus, many more students could be classified as positive perfectionists than negative perfectionists. The mean scores and standard deviations of perfectionism scores and scores on general self-efficacy and subjective well-being are summarized in Table 2, which also shows that these scales had relatively high internal consistency.

Gender and Grade-Level Differences on Perfectionism, General Self-Efficacy, and Subjective Well-Being

To explore whether there were gender or grade level (primary vs. secondary students) differences on perfectionism, general self-efficacy, and subjective well-being, a 2 X 2 (Gender X Grade Level) analyses of variance (ANOVA) was performed on the score of general self-efficacy as dependent variable, and two 2 X 2 (Gender X Grade Level) multivariate analyses of variance (MANOVAs) were performed on the scores of positive perfectionism and negative perfectionism as dependent variables and on the scores of life satisfaction, positive affect, and negative affect as dependent variables, respectively.

For general self-efficacy, the ANOVA results indicated that the grade-level main effect was significant, $F(1, 313) = 4.10, p < .05, \text{partial } \eta^2 = .013$, suggesting that primary students scored significantly

Table 2
Means, Standard Deviations, and Internal Consistency
of Measures of Perfectionism, General Self-Efficacy, and
Subjective Well-Being (N = 317)

	Number of Items	<i>M</i>	<i>SD</i>	Cronbach's <i>α</i>	Significant Group Differences
<i>Perfectionism</i>					
Positive Perfectionism	6	25.05	3.70	.73	Girls > Boys
Negative Perfectionism	6	16.21	4.54	.72	–
<i>General Self-Efficacy</i>					
	10	38.98	6.62	.88	Primary students > Secondary students
<i>Subjective Well-Being</i>					
Life Satisfaction	5	16.86	4.49	.82	Primary students > Secondary students
Positive Affect	10	38.26	6.16	.79	–
Negative Affect	10	24.86	7.27	.83	–

Note. All item ratings are in the range of 1 to 5. α is the Cronbach's alpha internal consistency measure. The significant group differences are the results from univariate analyses of variance or from univariate analysis of variance as a follow-up of the multivariate analysis.

higher than did secondary students on general self-efficacy. The main effect of gender and the interaction effect of Gender X Grade Level were nonsignificant ($p > .05$).

Regarding perfectionism, the MANOVA results indicated that the overall gender main effect was significant, Wilks' $\Lambda = .98$, $F(2, 312) = 3.14$, $p < .05$, partial $\eta^2 = .02$, but the overall grade-level main effect and the overall interaction effect of Gender X Grade Level were nonsignificant ($p > .05$). Subsequent univariate ANOVA on each of the two perfectionism scores was conducted as a follow-up test to the significant MANOVA overall gender main effect. Using the Bonferroni procedure to adjust for multiple tests, each ANOVA was evaluated at the value of $.05/2$ or $.025$. The results indicated that

girls gave themselves significantly higher ratings than did boys on positive perfectionism, $F(1, 313) = 6.10, p < .05$, partial $\eta^2 = .019$.

Regarding subjective well-being, the MANOVA results indicated that the overall grade level main effect was significant, Wilks' $\Lambda = .93, F(3, 311) = 7.43, p < .001$, partial $\eta^2 = .067$, but the overall gender main effect and the overall interaction effect of Gender X Grade Level were nonsignificant ($p > .05$). Subsequent univariate ANOVAs on each of the three subjective well-being measures was conducted as a follow-up test to the significant MANOVA overall grade-level main effect. Using the Bonferroni procedure to adjust for multiple tests, each ANOVA was evaluated at the value of $.05/3$ or $.0167$. The results indicated that primary students rated themselves significantly higher than did secondary students on life satisfaction, $F(1, 313) = 15.27, p < .001$, partial $\eta^2 = .047$. In summary, there were subtle significant gender and grade-level group differences on perfectionism, general self-efficacy, and subjective well-being, but the effect sizes of all these differences were small. All these significant group differences are also summarized in Table 2.

Predicting Subjective Well-Being Using Perfectionism and General Self-Efficacy

Table 3 shows the matrix of correlations computed to examine the relationships among perfectionism, general self-efficacy, and subjective well-being. Nearly all pairs of correlations were significant ($p < .05$). The exceptions were the correlations between positive perfectionism and negative perfectionism ($r = .07$), between positive affect and negative affect ($r = -.06$), and between negative perfectionism and life satisfaction ($r = -.09$). The minimal correlations suggested that the constructs of positive perfectionism and negative perfectionism were relatively independent, as were positive and negative affect, and that negative perfectionism might have little impact on one's appraisal of life satisfaction.

To examine more closely how perfectionism and general self-efficacy related to the measures of subjective well-being, a series of multiple linear regression analyses were conducted. Specifically, separate sets of multiple regression analyses were performed to explain the three aspects of subjective well-being using positive and nega-

Table 3
**Correlation Matrix of Subjective Well-Being,
 General Self-Efficacy, and Perfectionism (N = 317)**

	Subjective Well-Being			GSE	Perfectionism	
	LS	PA	NA		PPF	NPF
<i>Subjective Well-Being</i>						
Life Satisfaction (LS)						
Positive Affect (PA)	.22***					
Negative Affect (NA)	-.27***	-.06				
<i>General Self-Efficacy (GSE)</i>	.29***	.63***	-.24***			
<i>Perfectionism</i>						
Positive Perfectionism (PPF)	.29***	.49***	-.16**	.58***		
Negative Perfectionism (NPF)	-.09	.10*	.34***	.14*	.07	

Note. * $p < .05$. ** $p < .01$. *** $p < .001$ (2-tailed).

tive perfectionism and general self-efficacy as predictors. For each of the criterion measures of subjective well-being, three sets of analyses were conducted. In the first set of regression analyses, because gender and grade level were found to have separate main effects on positive perfectionism and on general self-efficacy and life satisfaction, it was deemed appropriate to use gender and grade as predictors (Set 1 predictors) to examine whether demographic variables could account for a substantial amount of variance in the criterion measures of subjective well-being without invoking the predictors of perfectionism and general self-efficacy. The second set of analyses used two ordered sets of predictors, with Set 1 predictors entered first, followed by Set 2 predictors of positive and negative perfectionism. The changes in R square and F were computed to evaluate whether the Set 2 predictors of perfectionism explained the criterion measures over and above the Set 1 predictors of demographic variables. The third set of analyses followed the same procedure and added Set 3 predictors of general self-efficacy to evaluate its contribution over and above the contribution of perfectionism, as well as that of demographic variables. Table 4 summarizes the results of the regression analyses.

From Table 4, it can be seen that Set 1 predictors of gender and grade alone did significantly explain life satisfaction, but the amount of variance accounted for was relatively modest (.04). The addition of Set 2 predictors of positive and negative perfectionism to Set 1 predictors yielded better explanation than using Set 1 predictors alone and accounted for a significantly greater proportion of variance (an increase of .09 to .25) in the three components of subjective well-being. The further addition of the Set 3 predictors of general self-efficacy also yielded significant increment in the variance explained (an increase of .02 to .15) especially in the subjective well-being component of positive affect. Grade also emerged as the significant predictor in explaining all three components of subjective well-being together with other predictors of perfectionism and general self-efficacy. However, the contribution of grade was comparatively modest except in explaining life satisfaction.

To check whether general self-efficacy could mediate the impact of perfectionism on subjective well-being in addition to its direct effect on subjective well-being, the first two sets of analyses were repeated for general self-efficacy as the criterion for explanation. The regression results are also shown in Table 4, suggesting that perfectionism affected significantly general self-efficacy.

Because perfectionism affected general self-efficacy, as well as subjective well-being, and both perfectionism and general self-efficacy affected subjective well-being, general self-efficacy might also mediate the effects of perfectionism on subjective well-being. Support for the conjecture that general self-efficacy might also act as a mediator in the association between perfectionism and subjective well-being could be gleaned from the regression analyses. Specifically, for example, the impact of positive perfectionism was substantially reduced when general self-efficacy was introduced in the explanation of all three components of subjective well-being. In the explanation of negative affect, the contribution of positive perfectionism was reduced to nonsignificance when general self-efficacy was introduced.

Table 4
Multiple Regression Analyses for the Explanation of Subjective Well-Being Using Demographic Variables, General Self-Efficacy and Perfectionism, and for the Explanation of General Self-Efficacy Using Demographic Variables and Perfectionism (N = 317)

Criterion	Analysis Set	Adjusted R ²	R ² Change	F Change	Significant Predictor	t
<i>Explaining Subjective Well-Being</i>						
Life Satisfaction	1	.04		7.25***	Gender	2.32*
	2	.14	.09	12.35***	Grade	-3.58***
	3	.16	.15	16.72***	Grade	-3.81***
Positive Affect	1	.01		11.85***	Positive perfectionism	5.47***
	2	.27	.02	8.66***	Negative perfectionism	-2.28*
	3	.26	.15	11.85***	Grade	-3.67***
	4	.27	.25	28.32***	Positive perfectionism	2.77**
General Self-Efficacy	1	.01		2.31	Negative perfectionism	-2.62**
	2	.26	.25	53.56***	General self-efficacy	2.94**

Negative Affect	3	.42	.42	.16	46.65***	88.30***	Positive perfectionism	10.15***
	1	.01	.01		1.84		Grade	-2.02*
	2	.16	.15	.15	14.56***	26.96***	Positive perfectionism	3.80***
General Self-Efficacy	3	.21	.20	.05	16.34***	19.94***	General self-efficacy	9.40***
	1						–	
	2						Positive perfectionism	-3.56***
Explaining General Self-Efficacy	3						Negative perfectionism	6.68***
	1						Grade	-2.17
	2						Negative perfectionism	7.34***
General Self-Efficacy	3	.36	.35	.35	43.30***	85.85***	General self-efficacy	-4.47***
	1	.00	-.00		0.49		–	
	2						Positive perfectionism	12.76***
							Negative perfectionism	2.00*

Note. Analysis 1 predictors are Set 1 predictors of gender and grade, evaluated with $F(2, 314)$. Analysis 2 predictors are all Set 1 predictors and Set 2 predictors of positive and negative perfectionism, with Set 1 predictors entered first, followed by Set 2 predictors evaluated with $F(4, 312)$, and R^2 and F change are evaluated with $F(2, 312)$ after controlling for the effects of Set 1 predictors. Analysis 3 predictors are all Set 1 and Set 2 predictors, as well as the Set 3 predictors of general self-efficacy, with Set 1 and 2 predictors entered first, followed by Set 3 predictors evaluated with $F(5, 311)$, and R^2 and F change are evaluated with $F(1, 311)$ after controlling for the effects of Set 1 and Set 2 predictors.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Perfectionism, while being viewed as an important characteristic of giftedness, has invariably been examined from a pathological perspective. This study extended past findings on perfectionism and giftedness to the Chinese setting and took the view that perfectionism needs to be distinguished into two forms. On the one hand, positive perfectionism, when defined in terms of a realistic striving for excellence, is not only nonpathological but also healthy and desirable and could lead to a positive sense of subjective well-being. On the other hand, negative perfectionism, defined as the rigid adherence to high personal standards with similar expectations from others, could be associated with psychological distress and pathology, which could be consequences of negative perfectionism. To test this conjecture, a new instrument was constructed to assess positive and negative perfectionism as two distinct constructs, as the extant popular measures have not made such a distinction. The findings of the emergence of two independent factors instead of a bipolar factor provided supportive evidence that positive and negative perfectionism could be empirically differentiated, and subsequent analyses also supported that the two constructs could be assessed validly and reliably. Unlike past studies on perfectionism, which generally included participants of a specific age group, this study included gifted students of a broad age range, thus providing some initial evidence that the constructs of positive and negative perfectionism are applicable to gifted students in different age groups. In summary, students tended to score higher on positive perfectionism than on negative perfectionism. Consistent with past findings in a non-Chinese setting (e.g., Parker, 1997), there could be many more positive perfectionists than negative perfectionists among Chinese gifted students or at least in this sample of Chinese gifted students.

The present findings also provided some initial data supporting the use of PNPS-12 as a viable self-report measure of positive and negative perfectionism. The two scales of PNPS-12 have been demonstrated to have reasonably high reliability in terms of internal consistency. The scales also had good construct validity as indicated in the results of factor analysis that behavioral manifestations of positive and negative perfectionism did co-occur separately as two

constructs in the students. Admittedly, the scales were constructed by a psychologist trained in psychometrics (the author) together with experienced frontline teachers as judges, and this “expert panel” might be questioned and needs to be expanded in the future revision of the scales, especially when one is concerned with a broader domain sampling of item content to reflect more comprehensively the constructs of positive and negative perfectionism. In addition, the scales were not compared with other established measures of perfectionism (e.g., MPS, FMPS) to provide evidence of convergent validity, which needs to be investigated in future studies. Nonetheless, the relationships with external measures of subjective well-being, as well as general self-efficacy, provided some support for the validity of the two constructs. Contrary to expectation, the initial conjecture that positive and negative perfectionism could be differentiated into self-orientation and other-orientation components did not receive adequate support from the data, as independent factors of orientations did not emerge in the present factor analyses. The emergence of only positive and negative perfectionism was consistent with past findings with adults in the general population (e.g., Bieling, Israeli, & Antony, 2004; Cox et al., 2002; Fedewa, Burns, & Gomez, 2005; Haase & Prapavessis, 2004; Terry-Short, Owen, Slade, & Dewey, 1995). However, questions might be raised as to whether these self-other orientations might emerge as students grow in age. Because 80% of the students in this study were between the ages of 9 and 14, this conjecture could not be well tested. Thus, future studies might seek to examine the emergence of these and other dimensions in positive perfectionism and negative perfectionism based on sampling more adequately students in defined age groups. Such studies on the assessment of the multidimensionality of perfectionism will contribute to the development of the scale in the ongoing process of scale refinement and revision, as well as validation. The development of the second generation of PNPS-12 might focus on further scale extension to assess other dimensions related to positive and negative perfectionism, or alternatively on constructing separate versions for younger and older children, as new dimensions might emerge as salient dimensions for children of specific age range.

In exploring correlates of perfectionism, this study focused on subjective well-being in line with positive psychology rather than on

psychopathology. The present findings indicated that positive and negative perfectionism correlated differentially with different components of subjective well-being. Specifically, positive perfectionism primarily affected life satisfaction and positive affect whereas negative perfectionism primarily affected negative affect. Moreover, general self-efficacy, apart from its direct effects on subjective well-being, could also mediate the effects of perfectionism, especially positive perfectionism, on the three components of subjective well-being. It could be argued that, unlike negative perfectionism, positive perfectionism as the realistic striving for excellence is not something to be eliminated but something to be promoted, perhaps through enhancing general self-efficacy of students.

Although the findings of this study based on cross-sectional data did suggest certain links among perfectionism, general self-efficacy, and subjective well-being, the inference of causality from perfectionism and general self-efficacy to subjective well-being was based largely on substantive considerations. Future studies might consider the collection of longitudinal data to ascertain the directionality of causal inference or the possible bidirectional influence among these variables and the possibly mediating role of general self-efficacy. Thus, testing models of causal inference highlights the need for future studies using longitudinal as well as cross-sectional designs and would represent a step beyond the present exploratory analyses based on multiple regression procedures.

Apart from the above limitations, this study certainly had other limitations. Among others, the method of sample selection could be at issue. It has been said that students selected through teacher and school nomination are likely to be academic high achievers who might generally be free from emotional difficulties and might adjust reasonably well in interpersonal relationships, even though teachers were requested to nominate students gifted in different domains regardless of their academic performance. Indeed, gifted students in this study generally scored relatively high on positive perfectionism and relatively low on negative perfectionism. Thus, cross-replication with samples not restricted to school-nominated gifted students should be helpful in establishing the generalizability of the present findings. Another major limitation of the present study is the complete reliance on self-report data in the psychometric assessment of

perfectionism and subjective well-being. One might raise the question whether younger children could complete the self-report task as did older children, given that a young child might comprehend or interpret an item in a different way because of limited life experiences and language use. Thus, future studies need to address this issue and determine whether separate versions of assessment instruments for younger and older children could be a more viable option than a version for children of a broad age range. Nonetheless, future investigations that include interviews and anecdotal materials from teachers, parents, and peers in addition to student self-report data could certainly help provide further insight into the relationships between perfectionism and subjective well-being of gifted students.

References

- Adkins, K. K., & Parker, W. D. (1996). Perfectionism and suicidal preoccupation. *Journal of Personality, 64*, 529–543.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*, 1175–1184.
- Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36*, 1373–1385.
- Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50*, 1003–1020.
- Brewerton, T. D., & George, M. S. (1993). Is migraine related to eating disorders? *International Journal of Eating Disorders, 14*, 75–79.
- Brouwers, M., & Wiggum, C. D. (1993). Bulimia and perfectionism: Developing the courage to be imperfect. *Journal of Mental Health Counseling, 15*, 141–149.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Burns, D. D. (1983). The spouse who is a perfectionist. *Medical Aspects of Human Sexuality, 17*, 219–230.

- Chan, D. W. (2002). Stress, self-efficacy, social support, and psychological distress among prospective Chinese teachers in Hong Kong. *Educational Psychology, 22*, 557–569.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment, 14*, 365–373.
- Davis-Berman, J. (1990). Physical self-efficacy, perceived physical status, and depressive symptomatology in older adults. *Journal of Personality, 124*, 207–215.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542–575.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71–75.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276–302.
- Eden, D., & Aviram, A. (1993). Self-efficacy training to speed reemployment: Helping people to help themselves. *Journal of Applied Psychology, 78*, 352–360.
- Fedewa, B. A., Burns, L. R., & Gomez, A. A. (2005). Positive and negative perfectionism and the shame/guilt distinction: Adaptive and maladaptive characteristics. *Personality and Individual Differences, 38*, 1609–1619.
- Ferrari, J. R. (1995). Perfectionism cognitions with nonclinical and clinical samples. *Journal of Social Behavior and Personality, 10*, 143–156.
- Flett, G. L., & Hewitt, P. L. (2002). *Perfectionism: Theory, research and treatment*. New York: American Psychological Association.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Dynin, C. B. (1994). Dimensions of perfectionism and Type A behavior. *Personality and Individual Differences, 14*, 119–126.
- Ford, M. A. (1989). Students' perceptions of affective issues impacting the social and emotional development and school performance of gifted/talented youngsters. *Roeper Review, 11*, 131–134.
- Forman, M. A., Tsoi, D. J., & Rudy, D. R. (1987). Common irrational beliefs associated with the psychophysiological conditions of

- low back pain, peptic ulcers and migraine: A multivariate study. *Journal of Rational-Emotive Therapy*, 5, 255–265.
- Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences*, 14, 119–126.
- Frost, R. O., Martin, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449–468.
- Frost, R. O., & Steketee, G. (1997). Perfectionism and obsessive compulsive disorder patients. *Behaviour Research and Therapy*, 35, 291–296.
- Haase, A. M., & Prapavessis, H. (2004). Assessing the factor structure and composition of the Positive and Negative Perfectionism Scale in sport. *Personality and Individual Differences*, 36, 1725–1740.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology*, 15, 27–33.
- Hamilton, T. K., & Schweitzer, R. D. (2000). The cost of being perfect: Perfectionism and suicide ideation in university students. *Australian and New Zealand Journal of Psychiatry*, 34, 829–835.
- Hewitt, P. L., & Dyck, D. G. (1986). Perfectionism, stress, and vulnerability to depression. *Cognitive Therapy and Research*, 10, 137–142.
- Hewitt, P. L., & Flett, G. L. (1989). The Multidimensional Perfectionism Scale: Development and validation [Abstract]. *Canadian Psychology*, 30, 339.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, 60, 456–470.
- Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology*, 102, 58–65.
- Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology*, 105, 276–280.

- Hewitt, P. L., Flett, G. L., & Turnbull-Donovan, W. (1992). Perfectionism and suicidal potential. *British Journal of Clinical Psychology, 31*, 181–190.
- Hollingworth, L. S. (1926). *Gifted children: Their nature and nurture*. New York: Macmillan.
- Jackson, D. N. (1970). A sequential system for personality scale development. In C. D. Spielberger (Ed.), *Current topics in clinical and community psychology* (Vol. 2, pp. 61–96). New York: Academic Press.
- Janos, P. M., & Robinson, N. M. (1985). Psychosocial development in intellectually gifted children. In F. D. Horowitz & M. O'Brien (Eds.), *The gifted and talented: Developmental perspectives* (pp. 149–195). Washington, DC: American Psychological Association.
- Karnes, F., & Oehler-Stinnet, J. (1986). Life events as stressors with gifted adolescents. *Psychology in the Schools, 23*, 406–414.
- Kerr, B. (1991). *A handbook for counseling the gifted and talented*. Alexandria, VA: American Association for Counseling and Development.
- Lightsey, O. R., Jr. (1996). What leads to wellness? The role of psychological resources in well-being. *Counseling Psychologist, 24*, 589–759.
- LoCicero, K. A., & Ashby, J. S. (2000). Multidimensional perfectionism in middle school age gifted students: A comparison to peers from the general cohort. *Roeper Review, 22*, 182–185.
- Lovecky, D. V. (1992). Exploring social and emotional aspects of giftedness in children. *Roeper Review, 15*, 18–25.
- Lovecky, D. V. (1994). Exceptionally gifted children: Different minds. *Roeper Review, 17*, 116–120.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of subjective well-being measures. *Journal of Personality and Social Psychology, 71*, 616–628.
- Lundh, L. G., Broman, J. E., Hetta, J., & Saboonchi, F. (1994). Perfectionism and insomnia. *Scandinavian Journal of Behavior Therapy, 23*, 3–18.
- Pearson, C. A., & Gleaves, D. H. (2006). The multiple dimensions of perfectionism and their relation with eating disorder features. *Personality and Individual Differences, 41*, 225–235.

- Parker, W. D. (1997). An empirical typology of perfectionism in academically talented children. *American Educational Research Journal, 34*, 545–562.
- Parker, W. D. (2000). Healthy perfectionism in the gifted. *Journal of Secondary Gifted Education, 11*, 173–183.
- Parker, W. D., & Mills, C. J. (1996). The incidence of perfectionism in gifted students. *Gifted Child Quarterly, 40*, 194–199.
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction With Life Scale. *Psychological Assessment, 5*, 164–172.
- Robbins, S. B., & Kliewer, W. L. (2000). Advances in theory and research on subjective well-being. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (3rd ed., pp. 310–345). New York: John Wiley & Sons.
- Roedell, W. C. (1984). Vulnerabilities of highly gifted children. *Roeper Review, 6*, 127–130.
- Roeper, A. (1982). How the gifted cope with their emotions. *Roeper Review, 5*, 21–26.
- Schuler, P. A. (2000). Perfectionism and gifted adolescents. *Journal of Secondary Gifted Education, 11*, 183–196.
- Schwarzer, R. (1993). *Measurement of perceived self-efficacy: Psychometric scales for cross-cultural research*. Berlin, Germany: Freie Universitat Berlin.
- Shafran, R., & Mansell, W. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review, 21*, 879–906.
- Shek, D. T. L., Chan, L. K., & Lee, T. Y. (1997). Parenting styles, parent-adolescent conflict, and psychological well-being of adolescents with low academic achievement in Hong Kong. *International Journal of Adolescent Medicine and Health, 9*, 233–247.
- Siegle, D., & Schuler, P. A. (2000). Perfectionism differences in gifted middle school students. *Roeper Review, 23*, 39–44.
- Silverman, L. K. (1993). Counseling families. In L. K. Silverman (Ed.), *Counseling the gifted and talented* (pp. 151–178). Denver, CO: Love.
- Silverman, L. K. (1999). Perfectionism. *Gifted Education International, 13*, 216–225.

- Stober, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences, 24*, 481–491.
- Stumpf, H., & Parker, W. D. (2000). A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences, 28*, 837–852.
- Suddarth, B. H., & Slaney, R. G. (2001). An investigation of the dimensions of perfectionism in college students. *Measurement and Evaluation in Counseling and Development, 34*, 157–165.
- Terry-Short, L. A., Owens, R. G., Slade, P. D., & Dewey, M. E. (1995). Positive and negative perfectionism. *Personality and Individual Differences, 18*, 663–668.
- Toner, B. B., Garfinkel, P. E., & Garner, D. M. (1986). Long-term follow-up of anorexia nervosa. *Psychosomatic Medicine, 48*, 520–529.
- Vincent, N. K., & Walker, J. R. (2000). Perfectionism and chronic insomnia. *Journal of Psychosomatic Research, 49*, 349–354.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.
- Zhang, J. X., & Schwarzer, R. (1995). Measuring optimistic self-belief: A Chinese adaptation of the General Self-Efficacy Scale. *Psychologia, 38*, 174–181.

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