



Perfectionism, Self-compassion and Test-Related Hope in Chinese Primary School Students

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Abstract Perfectionism is multidimensional and includes perfectionistic striving (ceaseless pursuit of very high performance standards) and perfectionistic concerns (excessive self-criticism over one's inability to live up to unrealistically high expectations). Previous studies generally suggest that both perfectionistic striving and perfectionistic concerns are highly related to emotions; however, little research has been conducted on how perfectionism and its distinct components relate to key academic emotions such as hope towards one's test performance. This study aimed to examine the relationship between perfectionism and test-related hope, and the mediating role of self-compassion. A sample of Chinese primary students ($N = 1051$) were recruited to complete measures of perfectionism, self-compassion and test-related hope. Structural equation modeling showed that perfectionistic striving was associated with higher test-related hope, and perfectionistic concerns with lower test-related hope. Partial mediation effects of self-compassion on the relationship between dimensions of perfectionism and test-related hope were also found. The findings contribute to our understanding of how perfectionism is related to emotion constructs in competitive contexts. Implications pertaining

to future directions in research and practice will be discussed.

Keywords Perfectionism · Self-compassion · Test-related hope · Academic emotion · Chinese students

Introduction

Examination is an emotionally intense context where *perfect* performance is of utmost importance to most, if not all, students. This striving for perfect performance may have implications for the types of emotions students feel. One possible scenario is that while working hard is generally believed to be a key to success especially among Chinese students (e.g., Hau and Salili 1996), the more students embrace setbacks and work hard for perfect performance, the more they believe they will succeed in a test, i.e., more hopeful. However, it is also possible that students who strive hard for perfect performance are overly sensitive to their flaws and hold an unrealistic view of the mistakes they make (cf. self-compassion). This excessive sensitivity to flaws (perfectionistic concerns) and self-judgment may make one feel less hopeful about one's test performance. To date, little research has been conducted on how perfectionism is associated with the emotions that students experience in test-related contexts, in particular, test-related hope. Moreover, we also know little about the key theoretical mechanisms that links perfectionism to test-related emotions.

Guided by the control-value theory of achievement emotions (Pekrun et al. 2002, 2007), the present research thus aimed to look into the development of positive test-related emotions by examining the associations between perfectionism and test-related hope, and the potential

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mediating role of self-compassion (one's ability to gain realistic awareness and acceptance of negative feelings, personal inadequacies, and suffering with compassion) (Neff 2003) in a sample of Chinese primary school students. Perfectionism was particularly worth investigating because of its relevance to not only emotions (e.g., Ashby et al. 2011; Eum and Rice 2011), but also the context of examination in Chinese societies where academic flaws are less tolerable and academic failure is believed to be shameful and detrimental to students' future endeavors. The findings will offer unique insights for expanding the research agenda of emotion studies and for helping Chinese children cope with the inevitable tension in competitive testing situations.

The Control-Value Theory of Achievement Emotions

The control-value theory of achievement emotions (Pekrun et al. 2002, 2007) postulates that students will experience various positive and negative emotions related to learning and achievement outcomes based on the extent to which they feel being in control of their achievement outcomes (i.e., control-appraisals), as well as how much they value the achievement outcomes (i.e., value-appraisals). In other words, students who care about their test results and feel well-prepared for a given test will experience more positive emotions about the test, such as feeling more hopeful about their test performance (i.e., test-related hope) and more proud of their test performance after the test (i.e., test pride). In contrast, students who cannot cope with the subject matter and do not care much about the test will experience negative test emotions, such as feeling anxious before the test and being bored during the test (i.e., test anxiety and test boredom).

Although Pekrun and colleagues' seminal work on achievement emotions (i.e., Pekrun et al. 2002) demonstrated that personality predicts test-related emotions, subsequent studies on test-related emotions have overlooked the significance of this link. Much attention has nevertheless been placed on class- and learning-related emotions in relation to cognitive-motivational constructs. Among the few studies on test-related emotions, it was suggested that both positive and negative test-related emotions are associated with students' self-regulated learning (e.g., Burić and Sorić 2012) and academic achievement (e.g., Villavicencio and Bernardo 2013). Investigations on the links between personal factors and positive test-related emotions, such as test-related hope, are warranted to promote students' emotional well-being in test-taking situations.

Perfectionism and the Control-Value Theory

Perfectionism is a multidimensional personality characteristic related to psychological well-being and academic adjustment (e.g., Stoeber and Rambow 2007; Wang et al. 2009). Although conceptualizations and labels vary across established measures of perfectionism (e.g., Frost et al. 1993; Hewitt and Flett 1991; Slaney et al. 2001), factor analytic studies of the measures have revealed two common dimensions: a perfectionistic striving dimension which pertains to a ceaseless pursuit of very high performance standards; and a perfectionistic concerns dimension which pertains to excessive self-criticism when the high standards cannot be met (e.g., DiBartolo and Rendón 2012; Stoeber and Otto 2006).

In light of the control-value theory of achievement emotions (Pekrun et al. 2007), perfectionism and test emotions may have close conceptual links with each another. With the unwavering status of tests and exams, one can expect all perfectionists to value the performance outcomes and strive for the best academic performance possible. Such perfectionistic striving reflects what Pekrun et al. (2002) regard as *value-appraisals*. Arana and Furlan (2016) found that perfectionists generally put in more efforts to improve their academic achievement than students who did not hold high performance expectations. The striving for high standards per se intrinsically motivate students against procrastination and help them focus on resolving problems when preparing for tests (Arana and Furlan 2016; Burnam et al. 2014). Among Chinese secondary students, Chan (2012) found that students who set high performance standards without excessive self-evaluation (i.e., adaptive perfectionists) are more likely than others to believe that achievement can be improved with efforts and endorse a growth mindset. In this connection, perfectionistic striving may entail a better sense of control among students in testing, i.e., *control-appraisals*.

Self-Compassion and the Control-Value Theory

Self-compassion has been studied in a growing body of research associated with emotion regulation and functioning, particularly in clinical and health disciplines (e.g., Finlay-Jones et al. 2015; Pauley and McPherson 2010). In particular, previous studies have suggested a positive relationship between self-compassion and hope. For instance, Sear and Kraus (2009) showed that individuals' who went through a self-compassion induction intervention became more certain about their ability to find effective means to achieve goals, i.e., perceived hope. In another study, parents who were more self-compassionate were

also found to be more hopeful about future (Neff and Faso 2015). However, little is known whether the construct can also be facilitative to school-age children's hope in stressful school settings.

Among Chinese students, self-compassion was found to predict self-efficacy (Kwan et al. 2009), buffer self-criticism and protect students against depression (Wong and Mak 2013), and was associated with psychological well-being in terms of environmental mastery, personal growth, positive relations with others, and purpose in life (Sun et al. 2016). The increased awareness of personal weaknesses and challenging situations that self-compassionate individuals possess helps banish unrealistic negative thoughts and criticisms about one's shortcomings, giving individuals higher perceived competence. This coincides with how adaptive perfectionists can realistically evaluate their abilities and past performance to adjust their subsequent strategies and performance expectations (Enns and Cox 2002). Moreover, such realistic understanding of personal weaknesses and challenging situations also contributes to building a clearer sense of what is controllable in the environment and how life experiences, including failure, matters to personal growth, hence enabling individuals to see more possibilities for success in the future and feeling more motivated to make improvements (Breines and Chen 2012; Sun et al. 2016). In this connection, self-compassion can be conceptualized as an agent related to students' expectations of control over their test performance (i.e., control-appraisals), and thereby, the development of positive test-related emotions, e.g., test-related hope.

Perfectionism and Hope in Context

From the multidimensional view of perfectionism, Stoeber and Rambow (2007) found that the striving for perfection (perfectionistic striving) was related to hope for success and it was the negative reactions to being imperfect (perfectionistic concerns) that was related to fear of failure. Ashby et al. (2011) later pointed to the conceptual overlaps between perfectionistic striving and hope in that both constructs pertain to individuals' perceived ability and inherent motivation for success. They revealed that adaptive perfectionists who strive for high standards had higher levels of hope than maladaptive perfectionists and non-perfectionists. Furthermore, the effect size between perfectionistic striving and hope is considered "relatively large" based on the recommended values of Gignac and Szodorai (2016). Despite this empirical support for the possible positive link between perfectionistic striving and hope, perfectionism studies have carried on to focus on how it is linked to hopelessness.

In school, emotions that students experience should pertain to their experiences in class, learning and assessment situations instead of considering emotions in general (Pekrun et al. 2002). Notably, feeling hopeful about life does not necessarily lead one to feel hopeful about one's test performance. With the exception of test anxiety, development of positive test-related emotions has been overlooked. One related study suggested that students' tendency to approach success predicts their hope and pride related to test-taking. Moreover, being able to perceive the means to success and regulate one's attention and feelings during a test will help students feel hopeful and proud toward the testing experience as they strive for excellence (Schutz et al. 2008). This is consistent with how adaptive perfectionists strive for success by regulating their effort, motivation, and behavior with realistic self-evaluation. Their self-serving attributions (Speirs Neumeister 2004) and appreciation of effort (Campbell and Paula 2002) can give them more hope about their test performance.

The Hong Kong Context

Tao and Hong (2014) remarked that "learning and getting high grades are two goals that go hand in hand in Chinese culture". Hong Kong, like many other Chinese societies, are heavily influenced by the Confucian emphasis on learning as a means for continuous self-perfection and academic achievement as one's family obligation. Academic failure is commonly attributed to a lack of continuous effort and it is only through working harder can one overcome challenges and become a better, more knowledgeable self. In Hong Kong, while the need to demonstrate academic competence begins as early as the kindergarten years, academic achievement becomes utmost important to students in Primary 5 and 6 when exam scores are used as the only performance indicator in the centralized Secondary School Place Allocation exercise that most Primary 6 students participate in. The exercise allocates the top one-third of the cohort to the high-achieving Band 1 secondary schools, the next one-third to Band 2 schools, and the last one-third to low-achieving Band 3 schools (Chiu and Walker 2007). Entering a Band 1 secondary school is believed to increase one's odds of getting into a university, but mobility between secondary schools of different banding is highly challenging. Against this background, upper primary students in Hong Kong face mounting pressure to achieve *perfect* test performance as they move toward secondary education. Such competitive exam-oriented sociocultural background provided an appropriate context for studying students' perfectionism, self-compassion, and test-related emotion.

The Present Study

In light of the control-value theory of achievement emotions (Pekrun et al. 2002; 2007), the above sections have illustrated how students' perfectionism can be conceptualized as a variable that is related to students' value-appraisals and control-appraisals while self-compassion is related to students' sense of control in times of tests. These control- and value-appraisals may be pertinent to students' hope toward their test performance. Because having a realistic view of personal weaknesses and setbacks (i.e., self-compassion) coincides with the characteristics of adaptive perfectionists (e.g., Enns and Cox 2002) and previous studies suggest that self-compassion is related to increased hope (e.g., Sears and Kraus 2009), we positioned self-compassion as a potential mediator in the relationship between perfectionism and test-related hope in this study.

Taken together, the purpose of this study was two-fold: (1) to examine the associations among perfectionism, self-compassion and test-related hope; and (2) to test the mediating role of self-compassion in the relationship between perfectionism and test-related hope among Chinese primary school students. It was anticipated that students who strive for high standards of academic performance (i.e., with perfectionistic striving) were more self-compassionate and hopeful about their exam performance as they were more able to give themselves a pat on the shoulder and have a clearer sense of direction for future improvement. On the other hand, students who brood over the mistakes they made (i.e., with perfectionistic concerns) were less self-compassionate and less hopeful about their exam performance as they tend to be too unforgiving and emotional to appraise the failing experience and find possible pathways to improve their performance.

Method

Participants and Procedures

A total of 1,042 upper primary school students from four Hong Kong primary schools (each school comprising about 22–31% of the total sample) were recruited. Within each school, students were almost equally distributed among three grades: 31%, 34% and 35% for Primary 4, 5, and 6, respectively. Of these students, 404 were males (38.8%) and 626 were females (60%), while 12 remained unlabeled (1.2%). Invitation letters were sent to the school principals of primary schools located in different parts of Hong Kong. Upon receiving agreement from the participating schools, consent was obtained from both the parents and students concerned. Participants completed a questionnaire with

measures of perfectionism, self-compassion, and test-related hope during class time in their own school.

Instruments

Perfectionism

The Short Almost Perfect Scale (SAPS; Rice et al. 2014) was used. The 8-item instrument comprises two subscales, namely, Standards and Discrepancy, with each dimension measured by 4 items. Standards refers to one's positive striving for high performance standards (i.e., perfectionistic striving); and Discrepancy refers to one's excessive concerns over the differences between expected standards for performance and actual performance (i.e., perfectionistic concerns). Extant research has regarded Standards as an adaptive dimension of perfectionism and Discrepancy a maladaptive dimension of perfectionism. In the SAPS, an example of items measuring Standards and Discrepancy would be "I set very high standards for myself" and "I am hardly ever satisfied with my performance", respectively. Responses are rated on a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Higher scores indicate a higher degree of endorsement in the respective dimension of perfectionism.

Self-Compassion

The Self-Compassion Scale-Short Form (SCS-SF; Raes et al. 2011) was used. The scale has been widely used in clinical studies with adults and university students to study, for instance, their emotional problems (e.g., Sbarra et al. 2012) and disordered eating behaviors (e.g., Tylka et al. 2015). It comprises three pairs of opposing components: self-kindness vs. self-judgement, mindfulness vs. over-identification, and common humanity vs. isolation. Since this study attempts to explore the protective influence of self-compassion to students' academic adjustment, we only used the three positive self-compassion components (SCS; Neff 2003), namely, Self-Kindness (e.g., "I try to be understanding and patient toward those aspects of my personality I don't like"); Common Humanity (e.g., "When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people"), and Mindfulness (e.g., "When something painful happens, I try to take a balanced view of the situation"). Each component is measured by 2 items on a 5-point scale ranging from strongly disagree (1) to strongly agree (5). Higher mean scores indicate stronger endorsement of the positive self-compassion components.

Test-Related Hope

The Short Test Hope Scale (STHS) adapted from the Hope subscale of the Achievement Emotions Questionnaire (Pekrun et al. 2002) was used to assess students' test-related hope. The adapted scale contains 4 items measuring students perceived hope towards exams, e.g., "I think about my exam optimistically". Responses are rated on a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5).

Data Analysis

The current study used structural equation modeling (SEM) to examine the relationships among the key constructs. The SEM approach is preferred not only for its capability in minimizing measurement errors, but also for its power in detecting mediation effect in a straightforward way than conventional regression approach (MacKinnon 2008). To achieve our goal, we applied the two-step approach recommended by Anderson and Gerbing (1988) for conducting SEM. First, we conducted a series of confirmatory factor analyses (CFA) to determine the relations of the observed variables to their posited underlying constructs (i.e., perfectionism dimensions, self-compassion, and test-related hope). Second, we tested a structural model to examine the effects of perfectionism dimensions on test-related hope directly and by way of self-compassion.

We used the computer program Mplus 7.0 (Muthén and Muthén 2012) to test the measurement and structural models. For adequately fitting models, the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) should be less than 0.08, while the incremental fit index (IFI), Tucker–Lewis index (TLI), and comparative fit index (CFI) values should be larger than 0.90 (Byrne 2010).

Results

Missing Values

A common challenge in survey study is missing values. The original dataset contained 1,051 student participants. After removing 9 cases with missing rate of above 20% (Enders 2010), we actually used data by 1,042 cases, in which missing rates for all variables were about or less than 1%. We then used multiple imputation (Rubin 1987; Schafer 1997) in MPLUS 7.0 (Muthén and Muthén 2012) to replace the missing values. Following Schafer and Graham (2002), we generated five sets of data and averaged all parameters, standard errors, and model fit indices after Mplus estimation.

Descriptive Statistics, Reliability and Correlations

The descriptive statistics of the means and internal consistency reliabilities for each scale are shown in Table 1. The reliability estimates for the seven scales ranged from 0.66 for perfectionistic concerns to 0.84 for self-compassion, suggesting adequate internal consistency. The zero-order correlations indicate that all variables were related to each other, either positively or negatively. These results are generally in line with theoretical expectations.

Model Fit Results

Table 2 shows the model fit results of fitting four individual CFAs (Models 1 to 4), the full measurement model (Model 5), measurement invariance of the overall measurement model by gender (Models 5.1a–5.1c) and by grade (Models 5.2a–5.2b), and the final structural model (Model 6). Three individual measurement models (Model 1 for Perfectionistic standards, Model 3 for Self-compassion, and Model 4 for Test hope) fit the data well without any modification. The measurement model for Perfectionistic concerns produced good fit after one meaningful modification (freeing the covariance between Item 1 and Item 3). The full measurement model that combined all four tested measurement models produced good fit without any further modification.

As for measurement invariance assessment by gender, the non-significant values of Chi-squared divided by the degree of freedom and the absolute values of model fit indices (CFI, TLI, RMSEA, and SRMR) above the cut-off criteria indicated that the hypothesis of invariance could not be rejected across gender at the strong variance level (i.e., equal factor loadings and intercepts). However, the measurement invariance model for grade only converged at the weak invariance level. Overall, we concluded that the four measures met the minimum criteria of weak invariance (Kline 2015).

Drawing on the established individual measurement models, we converted the overall measurement model to a structural model to examine the potential mediation of self-compassion for the relationship between the two perfectionism factors and test-related hope. This was done by regressing the test-related hope factor to the two perfectionism factors and the self-compassion factor, which was again regressed on the two perfectionism factors (Model 6). This model ended up with a good fit: CFI = 0.930, TLI = 0.916, RMSEA = 0.057 (95% CI = 0.052, 0.062), SRMR = 0.065.

Table 1 Descriptive statistics, reliabilities, and bivariate correlations ($N = 1042$)

Variable	V1: standard	V2: discrepancy	V3: self-compassion	V4: test hope
V1		0.325**	0.282**	0.266**
V2			- 0.088**	- 0.181**
V3				0.432**
Mean	3.58	3.20	3.58	3.57
SD	0.75	0.75	0.79	0.88
Cronbach's alpha	0.76	0.66	0.84	0.83

** $p < 0.01$ **Table 2** Model fit results

Model	χ^2	df	χ^2/df	P	CFI	TLI	RMSEA (95% CI)	SRMR
Model 1: perfectionistic striving	11.334	2	5.67	0.017	0.985	0.954	0.068 (0.034, 0.108)	0.019
Model 2: perfectionistic concerns	4.649	1	4.65	0.031	0.991	0.948	0.059 (0.014, 0.117)	0.017
Model 3: self-compassion	26.03	9	2.89	0.089	0.984	.973	0.042 (0.024, 0.062)	0.022
Model 4: test-related hope	1.775	2	0.89	0.345	1.000	1.000	0.000 (0.000, 0.059)	0.006
Model 5: overall CFA	396.915	128	3.10	0.078	0.935	0.922	0.045 (0.040, 0.050)	0.065
Measurement invariance by gender								
Model 5.1a: configure model	632.766	284	2.23	0.135	0.922	0.916	0.048 (0.043, 0.053)	0.071
Model 5.1b: weak invariance	648.517	284	2.28	0.131	0.918	0.912	0.049 (0.040, 0.050)	0.074
Model 5.1c: strong invariance	664.731	284	2.34	0.126	0.914	0.908	0.051 (0.046, 0.056)	0.074
Measurement invariance by grade								
Model 5.2a: configure model	880.888	440	2.00	0.157	0.903	0.898	0.053 (0.048, 0.059)	0.079
Model 5.2b: weak invariance	885.538	440	2.01	0.156	0.902	0.899	0.053 (0.048, 0.058)	0.081
Model 6: SEM	566.052	128	4.42	0.035	0.930	0.916	0.057 (0.052, 0.062)	0.065

Results of Medication

The standardized estimates of the mediation of self-compassion between self-perfectionism factors and test-related hope are shown in the diagram in Fig. 1. The total effect of perfectionistic striving on test-related hope was $\beta = 0.47$, $p < 0.001$, 95% CI [0.39, 0.54]. The total effect of perfectionistic concerns on test-related hope was $\beta = -0.42$, $p < 0.001$, 95% CI [-0.49, -0.33]. The total effect of each perfectionism factor (i.e., standard and discrepancy) on test-related hope was represented by the sum of the direct and indirect effect of each factor on test-related hope.

The direct effect of perfectionistic striving on test-related hope was positive: $\beta = 0.31$, $p < 0.001$, 95% CI 0.23, 0.40, but direct effect of perfectionistic concerns was negative: $\beta = -0.31$, $p < 0.001$, 95% CI -0.34, -0.22. The direct effect of self-compassion on test-related hope was positive: $\beta = 0.34$, $p < 0.001$, 95% CI 0.26, 0.43.

The indirect effect of perfectionistic striving (or perfectionistic concerns) on test-related hope is represented by the product of the path coefficient from perfectionistic striving (or perfectionistic concerns) to self-compassion

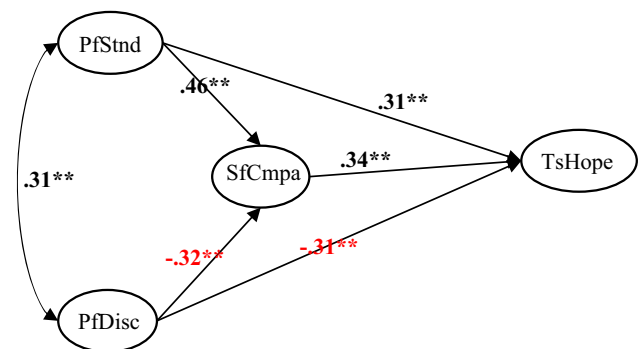


Fig. 1 SEM results. ** $p < 0.001$. *PfDisc* Perfectionistic concerns, *PfStd* perfectionistic standards, *SfCmpa* self-compassion, *TsHope* test-related hope

and the path from self-compassion to test-related hope. Therefore, the indirect effect of perfectionistic standards by way of self-compassion was $\beta = 0.16$, $p < 0.001$, 95% CI 0.12, 0.20, suggesting 34% of the total effect of perfectionistic standards on test-related hope was mediated by self-compassion. The indirect effect of perfectionistic concerns on test-related hope was $\beta = -0.11$, $p < 0.001$, 95% CI -0.14, -0.08, indicating 26% of the total effect

of perfectionistic concerns on test-related hope was mediated by self-compassion.

Discussion

The present research examined the associations among dimensions of perfectionism (i.e., perfectionistic striving and perfectionistic concerns), self-compassion and test-related hope in light of the control-value theory of achievement emotions (Pekrun et al. 2002). Situated in a stressful achievement-oriented Chinese school context, this study was among the first to view perfectionistic striving and self-compassion from the perspective of control- and value-appraisals (Pekrun et al. 2002). In line with our hypotheses, perfectionistic striving had a direct positive link with test-related hope whereas perfectionistic concerns had a direct negative link with test-related hope. Both dimensions of perfectionism (perfectionistic striving and perfectionistic concerns) were also indirectly associated with test-related hope via self-compassion. The findings lent support to the adaptive-maladaptive view of perfectionism (Slaney et al. 2001; Stoeber and Otto 2006) and contributed to the literature in several unique ways.

First, the present study deviates from conventional approaches to conceptualizing and studying perfectionism with a focus on its negative aspect (i.e., perfectionistic concerns). While Huan et al. (2008) suggested that childhood perfectionism can be adaptive or maladaptive depending on the presence of external stressors and coping resources, the direct positive link among perfectionistic striving and test-related hope in this study added to the implications of previous findings by suggesting that perfectionistic striving can be facilitative to Chinese primary school students' functioning even in the face of stressful situations like exams. Because Chinese primary school students who strive for *perfection* tend to be clearer about their personal weaknesses and how past failures are part of an inevitable learning process, they are able to feel more in control of, and more hopeful about the valuable test performance (test-related hope). This facilitative role of perfectionistic striving is relatively more powerful than the negative link between perfectionistic concerns and test-related hope. In this connection, our findings offer an alternative picture that runs counter to the perfectionism-distress link found among older western students in previous studies whereby perfectionism aggravated negative emotions, e.g., depressive symptoms, in stressful conditions (e.g., O'Connor et al. 2010). It is uncertain whether it is the formation stage of perfectionism or differences in cultural beliefs that has contributed to the present findings (e.g., Fwu et al. 2018; Tweed and Lehman 2002). Future investigations should involve Chinese and western students

from a wider range of grade levels, and adopt multiple methods, such as interviews and task observation, to verify the present findings. Students' exam stress may also be accounted for, perhaps using biological measures, to compare the present control-value hypothesis of perfectionism against the traditional diathesis-stress hypothesis (Hewitt and Flett 1993, 2002).

Second, the finding that self-compassion served as an intermediate variable in the reduced indirect negative association between perfectionistic concerns and test-related hope was interesting. It showed that self-compassion is already developed and is salient to students' emotional well-being as they strive for academic success at primary school ages. Although students who are emotionally overwhelmed by their previous mistakes (perfectionistic concerns) tend to be less hopeful about their exam performance, those who are able to gain a balanced, realistic view of their difficulties (self-compassion) are likely to possess relatively more hope toward their exam performance than those who do not. Given the dearth of research attention to self-compassion in school settings, the finding has lent support to the work of Sun et al. (2016) which suggested a positive link between self-compassion and psychological well-being among Chinese adolescents. Recalling the findings of Breines and Chen (2012), it is possible that self-compassion can increase primary students' motivation to self-improve despite their excessive concerns about their previous mistakes. The ability to engage in realistic self-appraisals may alleviate the extent to which maladaptive perfectionists criticize themselves and help them refocus on the remedial actions that should be taken for subsequent improvement (Neff 2003). Nevertheless, it was beyond the scope of this study to examine the moderation effects of self-compassion. Future investigations should involve primary school students and assess whether self-compassion can moderate the negative effects of perfectionistic concerns on test-related hope in young students.

From the perspective of the control-value theory of achievement emotions, examining personal factors (perfectionism and self-compassion) associated with context-specific hope, in this case test-related hope, augmented the literature on achievement emotions that has been focusing on cognitive-motivational constructs. This line of investigation has been much overlooked in the achievement emotions literature although Pekrun et al. (2007) acknowledged the influence of non-cognitive factors on emotions. In this connection, the present research may serve as a springboard to more investigations on the associations between non-cognitive personal factors and test-related emotions, particularly positive ones such as test-related hope, to further uncover how students' well-being in school can be enhanced in the long run.

Taken together, in the competitive Chinese primary school context, our findings imply a need for educators and school counseling practitioners to revisit the role of perfectionism in developing Chinese students' positive test-related emotions. While one should be cautious that this is not to neglect the possible maladaptive influence of perfectionism concerns on students' emotional well-being in school, it is possible that perfectionistic striving can provide Chinese primary school students with an attainable long-term goal, and therefore achievement-related hope, by gaining a balanced view of one's past failures and working harder on previous mistakes. One can feel good about exams because one has strived hard. When striving for academic success is part of the sociocultural values which also carries pragmatic implications to upper primary school students in Hong Kong, it may be more effective for teachers and school counseling practitioners to devise cultural-sensitive strategies to help students thrive or even benefit from their perfectionistic characteristics than to attempt lowering individual students' expectations of their test performance.

The present study is, nevertheless, limited by several limitations that should be noted when interpreting our findings. First, we are unable to infer any causal relationship because of the cross-sectional design of this study. Future studies should adopt a longitudinal design to investigate not only the causal effects of perfectionism on self-compassion and test-related hope, but also the developmental trajectories of these variables as primary school students proceed toward secondary education. It should also be noted that the two dimensions of perfectionism are inter-correlated with each other in this study. Future studies should control for the correlation between the dimensions of perfectionism to examine the shared, unique, combined, and interactive effects involved (Chang et al. 2016; Stoeber and Gaudreau 2017). Lastly, cultural interpretations of perfectionism should also be considered with care. As most of the perfectionism studies conducted in diverse cultural contexts have employed conceptualizations and measures that were developed in individualistic western contexts, it is possible that the notion of perfectionism may encompass dimensions that existing measures have yet to capture. Moreover, Chinese students residing in different countries and regions are subject to a different blend of cultural and historic influence. Hong Kong, for instance, was under British rule for over 150 years (1842–1997). It is unknown to what extent the conceptualizations and impact of perfectionism are alike among Chinese students from Hong Kong, Mainland China, and Chinese-American students. Future investigations are warranted to verify the generalizability of our findings. Multiple methods, such as interviews and classroom

observation, may also be employed to overcome the constraints of self-report measures.

Despite these limitations, we have shown that perfectionistic striving has a direct positive link with test-related hope, and an indirect link via self-compassion. Perfectionistic concerns, on the contrary, have a direct negative link with test-related hope. But the negativity of this link decreased when self-compassion was taken into account. The present study has provided important preliminary evidence to suggest the adaptiveness of perfectionistic striving and the potential facilitative role of self-compassion in developing test-related hope among Chinese primary school students who generally face immense social pressure for achieving academic excellence. Apart from the above-mentioned implications, our findings may offer an alternative perspective for school counseling personnel who work with Chinese primary students to understand students' test-related emotional tension in terms of personal factors (e.g., perfectionism and self-compassion) that pertains to their control- and value-appraisals.

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