

Chapter 1

How Do Grit and Gratitude Relate to Flourishing? The Mediating Role of Emotion Regulation



Jana Patricia Millonado Valdez and Jesus Alfonso Daep Datu

Abstract Research suggests that grit and gratitude can protect individuals against the hazards of maladaptive outcomes such as suicidal ideation. However, there are scarce investigations on how such positive traits predict wellbeing and the mechanisms underpinning the link of such dispositions to desirable psychological functioning especially in non-Western contexts. Moreover, previous studies relied heavily on the two-factor model of grit in examining the link of grit to psychological outcomes. This research addresses these gaps through assessing the associations of gratitude and triarchic model of grit dimensions (i.e., *perseverance of effort*, *consistency of interests*, and *adaptability to situations*) with flourishing among 236 high school students in the Philippines. In addition, this study explored the mediating effects of emotion regulation strategies—cognitive reappraisal and expressive suppression—on the hypothesized link of gratitude and grit on psychological flourishing. Results showed that all dimensions of grit and gratitude were associated with higher levels of flourishing. Gratitude and grit dimensions were also positively correlated with both cognitive reappraisal and expressive suppression. Furthermore, bias-corrected bootstrapping analyses at 95% confidence interval based on 5000 bootstrapped resamples demonstrated that cognitive reappraisal mediated the link of gratitude, *perseverance of effort*, and *adaptability to situations* on flourishing. Findings suggest that cognitive reappraisal serves as a psychological mechanism underscoring the relationship of gratitude and grit to wellbeing. Implications of the results to extant grit theorizing and practical initiatives on developing positive characters are elucidated.

Keywords Filipino students · Flourishing · Gratitude · Triarchic model of grit

J. P. Millonado Valdez

Department of Management, Hong Kong Baptist University, Hong Kong SAR, China

J. A. Daep Datu (✉)

Department of Special Education and Counselling; Integrated Centre for Well-Being (i-WELL),

The Education University of Hong Kong, Hong Kong SAR, China

e-mail: jadatu@eduhk.hk

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2021

L. E. van Zyl et al. (eds.), *Multidisciplinary Perspectives on Grit*,

https://doi.org/10.1007/978-3-030-57389-8_1

1.1 Introduction

Psychologists have highlighted the importance of non-cognitive skills such as social-emotional learning, character strengths, and compassion in fostering optimal psychological health in young children and adolescents. There is also an increasing recognition on the educational benefits associated with promoting happiness and positive traits among students in school contexts. Given the growing line of evidence about the beneficial consequences of positive traits on well-being outcomes, this study examines the roles of grit and gratitude in psychological flourishing in selected Filipino high school students.

Grit has been originally operationalized as individual's tendency to show passion and perseverance in achieving long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). It has two dimensions namely: *perseverance of effort* (i.e., persisting in achieving ambitions despite the obstacles and difficulties associated with goal pursuit), and *consistency of interests* (i.e., espousing constant interest that can result in goal achievement). Duckworth et al. (2007) demonstrated that grit was linked to optimal academic, career, and performance outcomes.

Grit has been associated with elevated levels of life satisfaction (Clark & Malecki, 2019), school satisfaction (Clark & Malecki, 2019; Ivcevic & Brackett, 2014; Li, Lin, Zhao, Chen, & Wang, 2018), meaning in life (Datu, King, Valdez, & Eala, 2019; Kleiman, Adams, Kashdan, & Riskind, 2013), positive affect (Hill, Burrow, & Bronk, 2016; Li et al., 2018), mindfulness (Li et al., 2018), psychological wellbeing (Salles, Cohen, & Mueller, 2014; Vainio & Daukantaitė, 2015), and satisfaction with peer relationships (Lan & Moscardino, 2019). Moreover, grit was related to lower anxiety (Musumari et al., 2018), depression (Datu et al., 2019; Kleiman et al., 2013; Musumari et al., 2018; Sharkey et al., 2018), and suicidal tendencies (Kleiman et al., 2013). Yet, except for a few studies (Clark & Malecki, 2019; Datu, Yuen, & Chen, 2017, 2018b), previous investigations relied on the two-factor model of grit and its link to wellbeing.

Given that recent literature has criticized the theoretical validity of the two-factor model of grit due to its lack of replicability and problems with its *consistency of interests* dimension (Credé, 2018, 2019; Credé, Tynan, & Harms, 2017), we adopted the *triarchic model of grit* (Datu et al., 2017; Datu, Yuen, & Chen, 2018a) which conceptualizes grit as tendency to show *perseverance of effort*, *consistency of interests*, and a newly added dimension—*adaptability to situations*. Unlike *consistency*, *adaptability to situations* encompasses the capacity to modify cognitions, interests, actions, and values based on situational or contextual factors (Datu et al., 2017, 2018a). For instance, even though a student aspiring to become a professional singer had enrolled in a private voice lesson or tutorial for the past few years, his consistent poor performance in local singing competitions where he participated prompted him to shift his focus to playing guitar instead. Studies have shown that *adaptability* was related to increased efficacy in various domains like career exploration, talent development, and performance of academic activities (Datu et al., 2017).

Previous studies have recognized the importance of examining the simultaneous roles of gratitude and grit on wellbeing outcomes (Datu et al., 2019; Kleiman et al., 2013). However, these investigations solely concentrated on meaning in life as a mediator on the link of gratitude and grit to depression which may offer limited insights into other cognitive, affective, and motivational processes explaining why such multiple positive resources may be associated with optimal psychological functioning. Therefore, this research aims to explore the association of gratitude and triarchic model of grit (TMG) dimensions with psychological flourishing via the mediating function of emotion regulation strategies (i.e., cognitive reappraisal and expressive suppression) in selected Filipino high school students.

1.2 Gratitude and Well-Being

Gratitude is defined as “a generalized tendency to recognize and respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (McCullough, Emmons, & Tsang, 2002, p. 112). It is a positive emotion that commonly results from appreciating the goodness in life, receiving gifts or acts of kindness, or experiencing any desirable event. Gratitude seems to be a prevalent emotion that can be observed in various situations. In fact, there has been numerous studies about the relationship between gratitude and various well-being outcomes.

Previous studies have shown that gratitude was consistently associated with several well-being outcomes such as happiness (Schnitker & Richardson, 2019; Witvliet, Richie, Root Luna, & Van Tongeren, 2019), positive affect (Froh, Kashdan, Ozimkowski, & Miller, 2009; Schnitker & Richardson, 2019), life satisfaction (Wood, Joseph, & Maltby, 2009), hope (Schnitker & Richardson, 2019; Witvliet et al., 2019), and meaning in life (Kleiman et al., 2013). Gratitude was also found to improve quality of sleep (Jackowska, Brown, Ronaldson, & Steptoe, 2016; Southwell & Gould, 2017), and cardiac coherence (Rash, Matsuba, & Prkachin, 2011). More importantly, gratitude has been found to be linked to subjective well-being across the lifespan (Chopik, Newton, Ryan, Kashdan, & Jarden, 2019). There is also growing body of evidence on how gratitude was related to decreased levels of aggression (Deng et al., 2019), anxiety (Flinchbaugh, Moore, Chang, & May, 2012), negative affect (Salces-Cubero, Ramírez-Fernández, & OrtegaMartínez, 2018), pain perception (Yu, Cai, Shen, Gao, & Zhou, 2016), depression (Flinchbaugh et al., 2012; Salces-Cubero et al., 2018), and suicidal risks (Kleiman et al., 2013; Rey, Quintana-Orts, Merida-Lopez, & Extremera, 2019).

Despite the consistent body of research showcasing the psychological benefits of gratitude, it appears that most of these studies focused on its relationship with subjective wellbeing, psychological well-being, and physical health. As Baumsteiger, Mangan, Bronk, and Bono (2019) have shared that “promoting gratitude is a viable route towards advancing human flourishing”, it is essential to explore how gratitude tracks psychological flourishing, and pinpoint concrete

psychological mechanisms underpinning the positive association of gratitude with optimal mental health outcomes.

1.3 Grit Dimensions and Well-Being

Existing studies have shown that dimensions of grit were differentially linked to various aspects of physical and psychological well-being. Thus far, there has been a relatively robust evidence correlating *perseverance of effort* to increased life satisfaction (Clark & Malecki, 2019; Datu et al., 2018b; Datu, Valdez, & King, 2016), meaning in life, interdependent happiness (Datu et al., 2018b), and optimal neurocognitive functioning (Moore et al., 2018). Perseverance was also negatively correlated to psychological distress (Datu et al., 2018b).

However, there is inconclusive evidence on how consistency of interests relates to well-being outcomes. On one hand, some investigations demonstrated that consistency was significantly associated with increased life satisfaction (Clark & Malecki, 2019), higher meaning in life, greater school satisfaction (Clark & Malecki, 2019), and lower perceived stress (Lee, 2017). On the other hand, other studies indicated that consistency was not significantly related to life satisfaction (Datu et al., 2016, 2018b), and positive affect (Datu et al., 2016, 2018b). Even a previous meta-analytic review (i.e., Credé et al., 2017) has shown that *consistency* was not considerably linked to optimal performance (i.e., academic achievement) outcomes which further exacerbates issues raised against the validity of the two-factor model of grit.

Importantly, few investigations have explored specific psychological mechanisms explaining why grit may be related to higher well-being outcomes. For example, mindfulness mediated the association of grit with happiness (Li et al., 2018). In addition, Jin and Kim (2017) have shown that grit was linked to greater subjective wellbeing due to the mediating role of basic needs satisfaction for competence and autonomy. Clearly, more studies are needed to generate evidence on precise social, cognitive, and emotional processes underscoring the complex link between grit and psychological wellbeing.

1.4 Theoretical Framework

In this research, we adopted the *conservation of resources theory* (Hobfoll, 2002; Hobfoll, Stevens, & Zalta, 2015), and *engine theory of wellbeing* (Jayawickreme, Forgeard, & Seligman, 2012) to rationalize the association of gratitude and grit with psychological flourishing. This section describes how and why positive psychological resources (i.e., gratitude and grit) may be linked to higher psychological wellbeing.

The *conservation of resources theory* (Hobfoll, 2002) argues that individuals experience stress when they are prone to lose valuable social, psychological, and

physical resources. As they face challenging situations, they use such resources not only to combat stress but also to gain additional resources necessary for coping with future stressors. In addition, this model emphasizes the importance of continuously accumulating psychological resources in order to shield one against resources loss and optimize mental health (Hobfoll et al., 2015). If gaining resources serves as an essential mechanism to protect individuals against stressful events, it is likely that both gratitude and TMG dimensions may be associated with increased levels of psychological flourishing characterized by purpose in life, efficacy, self-esteem, and positive interpersonal relationships (Diener et al., 2009).

Furthermore, we anticipated that specific psychological resources like gratitude and TMG dimensions (i.e., *perseverance of effort* and *adaptability to situations*) will be linked to elevated levels of flourishing due to the mediating role of emotion regulation strategies (Gross & John, 2003). There are two broad types of emotion regulation namely: (a) cognitive reappraisal which encompasses reinterpreting an emotion-evoking scenario in order to change its meaning and emotional consequences; and (b) expressive suppression which involves attempting to hide or restrict showing of actual emotions felt after an emotion-eliciting event (Gross & John, 2003). Research has shown that cognitive reappraisal is a more adaptive form of emotion regulation approach (Gross, 1999; Gross & Barrett, 2011; Gross & John, 2003). Consistent with the *engine theory of well-being* (Jayawickreme et al., 2012), it is possible that positive intrinsic variables (i.e., gratitude and grit) may be related to well-being outcome (i.e., flourishing) due to the mediating role of process variables or internal subjective states that can affect individuals' actions or behaviors. In this study, we operationalized emotion regulation approaches as process variables as both cognitive reappraisal and expressive suppression are considered internal psychological states that directly impact on emotions and meanings associated with emotion-eliciting events.

Specifically, we proposed the following hypotheses in this study:

Hypothesis 1: Gratitude will positively predict flourishing.

Hypothesis 2: TMG dimensions (i.e., *perseverance* and *adaptability*) will positively predict flourishing.

Hypothesis 2a: *Perseverance* and *adaptability* positively predict flourishing.

Hypothesis 2b: *Consistency* will not predict flourishing.

Hypothesis 3: Gratitude will positively predict cognitive reappraisal.

Hypothesis 4: TMG dimensions (i.e., *perseverance* and *adaptability*) will positively predict cognitive reappraisal

Hypothesis 4a: *Perseverance* and *adaptability* will positively predict cognitive reappraisal.

Hypothesis 4b: *Consistency* will not predict cognitive reappraisal.

Hypothesis 5: Cognitive reappraisal will positively predict flourishing.

Hypothesis 6: Cognitive reappraisal will mediate the associations of gratitude and TMG dimensions (i.e., *perseverance* and *adaptability*) with flourishing.

We did not propose hypotheses on the associations of gratitude, grit, and flourishing with expressive suppression given the scarcity of research on how these variables relate to each other.

1.5 Methods

1.5.1 *Participants and Procedures*

The sample comprised 213 Filipino high school students from a public school in Quezon City, Philippines. These participants were recruited via convenience sampling approach which involved inviting classes that were available during data collection. Students were advised that they could freely withdraw to participate in the study without facing any consequences on their respective school marks. Students enrolled in public schools commonly cater for students from low-income families. The participants' ages ranged from 10 to 19 ($M_{age} = 15.43$, $SD_{age} = .84$). There were 101 girls and 112 boys who participated in this study.

1.5.2 *Measures*

Gratitude The 3-item Gratitude Questionnaire (Valdez & Chu, 2019) was used in this research given that criticisms were raised on the original 6-item Gratitude Questionnaire. Items were rated on a 6-point Likert scale (1 = *Strongly disagree*; 6 = *Strongly agree*). The Cronbach's alpha coefficient of this scale was .60. Prior studies also showed that this scale had relatively low reliability estimates especially in Filipino student samples (Datu, 2014; Datu & Mateo, 2015; Valdez & Chu, 2019).

Grit The 10-item Triarchic Model of Grit Scale (Datu et al., 2017) was utilized to measure perseverance, passion, and adaptability for long-term goals in the current sample. Items were rated on a 5-point Likert scale (1 = *Not like me at all*; 5 = *Very much like me*). The Cronbach's alpha coefficients of perseverance of effort, consistency of interests, and adaptability to situation subscales were .67, .50, and .70 respectively. Past studies showed that *consistency of interests* dimension had low reliability estimates in Filipino student samples (Datu et al., 2016, 2017).

Emotion Regulation The 10-item Emotion Regulation Scale (Gross & John, 2003) was used to assess two specific emotion regulation strategies namely: (a) cognitive reappraisal; and (b) expressive suppression. Items were marked on a 7-point Likert scale (1 = *Strongly disagree*; 7 = *Strongly agree*). The Cronbach's alpha coefficients of cognitive reappraisal and expressive suppression dimensions were .71 and .72 respectively.

Flourishing The 8-item Psychological Flourishing Scale (Diener et al., 2009) was used to assess the perceived sense of accomplishment in various areas of life like purpose in life, optimism, positive interpersonal relationship, and self-esteem. Items were rated on a 7-point Likert scale (1 = *Strongly disagree*; 7 = *Strongly agree*). The Cronbach's alpha coefficient of this scale was .84.

The English version of the abovementioned scales were used in this investigation given that English serves as one of the official mediums of instruction in Philippine secondary school educational system.

1.5.3 Procedures

The corresponding author sought the approval of the Human Research Ethics Committee of the Education University of Hong Kong to conduct this study. Next, his research assistant asked permission from the school principal of a government-funded high school to carry out data collection activity. Active consent forms were distributed to participants as well as their parents prior to actual survey administration. After successfully getting an approval to perform data collection in the said school, his research assistant administered the paper-and-pencil version of the survey to 4 classes. On the average, it took her around 15 min to administer the survey packet. All participants voluntarily agreed to participate in this study.

1.5.4 Data Analyses

Cronbach's alpha coefficients of each scale were calculated to provide reliability estimates of the questionnaires used in this research. Then, descriptive statistics like mean and standard deviation of demographic details, explanatory variables, and outcome variable were computed. Next, Pearson-r correlational coefficients were calculated to generate evidence on how explanatory and outcome variables were linked to each other. Then, bias-corrected bootstrapping mediation analysis at 95% confidence interval based on 5000 bootstrapped resamples was conducted to: (a) examine whether gratitude and TMG dimensions would predict flourishing; and (b) emotion regulation strategies like cognitive reappraisal and expressive suppression would mediate the link of gratitude and TMG dimensions to flourishing. These analyses were carried out using the 25th version of the Statistical Package for the Social Sciences.

1.6 Results

The results of reliability, descriptive statistical, and zero-order correlational analyses are shown in Table 1.1. A review of Cronbach's alpha coefficients showed that whereas emotion regulation approaches (i.e., cognitive reappraisal and expressive suppression) and flourishing had good reliabilities, gratitude and selected grit dimensions (i.e., *perseverance* and *consistency*) had relatively low reliability coefficients. Results of correlational analyses showed that gratitude and TMG dimensions were positively correlated with both emotion regulation strategies and flourishing. Both emotion regulation dimensions were positively correlated to flourishing.

Findings of multiple regression analyses are described in Table 1.2. Hypothesis 1 and Hypothesis 2 (i.e., Hypothesis 2a) were supported as gratitude ($\beta = .33$, $t = 4.76$, $p < .001$), perseverance of effort ($\beta = .40$, $t = 8.24$, $p < .001$), and adaptability to situations ($\beta = .37$, $t = 4.37$, $p < .001$) positively predicted flourishing. Hypothesis 2b was confirmed as consistency of interests did not predict flourishing, $\beta = .11$, $t = 1.35$, $p = .08$. Hypothesis 3 was supported as gratitude ($\beta = .33$, $t = 13.49$, $p < .001$) positively predicted flourishing. Corroborating Hypothesis 4a, perseverance of effort ($\beta = .38$, $t = 5.30$, $p < .001$), and adaptability to situations ($\beta = .55$, $t = 6.45$, $p < .001$) positively predicted cognitive reappraisal. Hypothesis 4b was not confirmed as consistency of interests positively predicted cognitive reappraisal, $\beta = .42$, $t = 5.17$, $p < .001$. Gratitude ($\beta = .33$, $t = 4.17$, $p < .001$), perseverance of effort ($\beta = .53$, $t = 6.14$, $p < .001$), consistency of interests ($\beta = .55$, $t = 5.52$, $p < .001$), and adaptability to situations ($\beta = .58$, $t = 5.69$, $p < .001$) positively predicted expressive suppression. Hypothesis 5 was confirmed given that cognitive reappraisal positively predicted flourishing in all hypothesized mediation models.

Table 1.1 Descriptive statistics and correlational analyses among TMG dimensions, gratitude, emotion regulation, and flourishing

	α	M	SD	r							
				1	2	3	4	5	6	7	
1. Gratitude	.60	4.08	.67	–							
2. Perseverance of effort	.67	3.99	.69	.27***	–						
3. Consistency of interests	.50	3.75	.61	.15*	.43***	–					
4. Adaptability to situations	.70	4.02	.59	.35***	.49***	.34***	–				
5. Cognitive reappraisal	.71	5.58	.77	.28***	.34***	.34***	.41***	–			
6. Expressive suppression	.72	5.48	.93	.23***	.39***	.36***	.37***	.66***	–		
7. Flourishing	.84	5.67	.80	.41***	.49***	.27***	.45***	.51***	.45***	–	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 1.2 Standardized regression weights of the regression analyses

Types of paths	Standardized estimates		
	β	SE	<i>t</i>
Direct effects			
Gratitude flourishing	.33***	.07	4.76
Perseverance flourishing	.40***	.07	8.24
Consistency flourishing	.11	.08	1.35
Adaptability flourishing	.37***	.09	4.37
Gratitude and grit dimensions predicting mediators			
Gratitude cognitive reappraisal	.33***	.08	13.49
Perseverance cognitive reappraisal	.38***	.07	5.30
Consistency cognitive reappraisal	.42***	.08	5.17
Adaptability cognitive reappraisal	.55***	.08	6.45
Gratitude expressive suppression	.33***	.09	3.48
Perseverance expressive suppression	.53**	.09	6.14
Consistency expressive suppression	.55***	.10	5.52
Adaptability expressive suppression	.58***	.10	5.69
Mediators predicting outcomes			
(Gratitude) cognitive reappraisal flourishing	.33***	.08	4.17
(Perseverance) cognitive reappraisal flourishing	.34***	.08	4.45
(Consistency) cognitive reappraisal flourishing	.38***	.09	4.61
(Adaptability) cognitive reappraisal flourishing	.31***	.08	3.88
(Gratitude) expressive suppression flourishing	.15*	.06	2.38
(Perseverance) expressive suppression flourishing	.09	.06	1.36
(Consistency) expressive suppression flourishing	.15*	.07	2.27
(Adaptability) expressive suppression flourishing	.13*	.07	2.03

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Results of bias-corrected bootstrapping analysis at 95% confidence interval based on 5000 bootstrapped resamples demonstrated that cognitive reappraisal mediated the link of gratitude, perseverance of effort, and adaptability to situations to flourishing which corroborated Hypothesis 6. Yet, this emotion regulation strategy mediated the association of consistency with flourishing. Expressive suppression did not mediate the relations of gratitude and TMG dimensions to the said outcome variable. Results of bootstrap analyses were reported in Table 1.3.

Effect sizes were reported based on the coefficient of determination or R-squared coefficients in each hypothesized regression model. The first model revealed that gratitude and emotion regulation approaches to flourishing accounted for 16.51% of the variance in the said outcome variable. Perseverance and emotion regulation dimensions contribute to 37.99% of the changes in psychological flourishing. Further, consistency and emotion regulation dimensions explained 28.82% of the changes in the outcome variable. Lastly, combination of adaptability and emotion regulation dimensions accounted for 34.20% of the variance in flourishing.

Table 1.3 Results of indirect effects of gratitude and TMG dimensions on flourishing via emotion regulation approaches

	Cognitive reappraisals		Expressive suppression	
	Indirect effects	95% CI	Indirect effects	95% CI
Gratitude	.11**	.05, .20	.05	.01, .13
Perseverance of effort	.13***	.06, .24	.05	-.02, .14
Consistency of interest	.17***	.08, .28	.08	-.001, .19
Adaptability to situations	.17***	.08, .29	.08	-.01, .19

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

1.7 Discussion

Existing literature has mostly paid attention to the roles that the two-factor model of grit (Duckworth et al., 2007), and gratitude play in students' mental health outcomes (Datu et al., 2019; Kleiman et al., 2013). However, this model of grit has received considerable criticisms in previous research (Credé, 2018, 2019; Credé et al., 2017) which points to the significance of exploring how alternative grit model predicts psychological wellbeing. Against this backdrop, this research explores the association of TMG dimensions and gratitude with psychological flourishing in selected Filipino high school students. It also assesses the mediating effects of emotion regulation strategies (i.e., cognitive reappraisal and expressive suppression) on the link of both traits to flourishing.

Our research demonstrated that gratitude was linked to increased psychological flourishing and cognitive reappraisal. This result corroborates previous evidence showing how gratitude relates to well-being outcomes (Froh et al., 2009; Kleiman et al., 2013; Schnitker & Richardson, 2019; Witvliet et al., 2019; Wood et al., 2009). To our knowledge, it is the first investigation of its kind to demonstrate the association of gratitude with flourishing and adaptive emotion regulation technique especially in a collectivist setting (i.e., Philippines).

Furthermore, our study revealed that *perseverance of effort* was associated with elevated levels of psychological flourishing which aligned well with what had been found in previous research regarding the positive correlation of *perseverance* to various dimensions of psychological well-being (Clark & Malecki, 2019; Datu et al., 2016, 2018b). It is likely that *perseverance* may relate to social-psychological prosperity as the *invest-and-accrue model of conscientiousness* (Hill & Jackson, 2016) argues that individuals with increased tendencies to show sustained diligence and persistence may prioritize performing actions that result in domain-specific success. As they achieve success in specific domains of life through espousing *perseverance*, they might experience higher levels of psychological wellbeing.

In addition, *adaptability to situations* was related to increased psychological flourishing which corroborated previous research on the positive correlation of this TMG dimension with positive student outcomes (Datu et al., 2017, 2018b). One of the potential reasons accounting for the significant associations of *adaptability to*

situations with adaptive emotion regulation strategies and psychological flourishing involves the salience of socially-oriented ambitions in collectivist settings. Further, as collectivist societies (i.e., Philippines) tend to reward calibrating actions or behaviors based on what is needed in various situations (Suh, 2007), it is likely that individuals in such contexts may change their goals contingent on contextual needs.

However, the pattern of association between *consistency of interests* and flourishing was more complex than expected. Whereas *consistency* did not have direct effects on flourishing which corroborated previous studies on lack of relationship between consistency and well-being (Datu et al., 2016, 2018b), result showed that this grit dimension had indirect and positive link to flourishing via the mediator—cognitive reappraisal. This indicates that maintaining consistent set of interests over time may be associated with increased psychological well-being if this tendency provides opportunities to reflect on alternative meanings of emotion-evoking situations and consequently modify emotional responses.

Consistent with our theoretical prediction, cognitive reappraisal was related to increased psychological flourishing. Our result corroborated previous research findings on the beneficial role of adopting cognitive reappraisal when managing emotional reactions (Gross, 1999; Gross & Barrett, 2011; Gross & John, 2003). It is possible that cognitive reappraisal may be associated with greater flourishing as calibrating interpretations of specific emotional events can result in more positive emotional reactions and lesser negative emotional consequences (Gross, 1999, 2002).

Whereas existing literature has allured to the downside of using expressive suppression (Gross, 1999, 2002; Gross & Barrett, 2011; Lu, Tsai, Chu, & Xie, 2018), our study showed that this emotion regulation strategy was positively correlated to flourishing. There is a reason to believe that this emotion regulation technique may not be considered maladaptive in non-Western societies given the evidence on the non-significant or attenuated impacts of this emotion regulation strategy in non-Western samples like Vietnamese Americans (Tsai, Lau, Nguyen, Ngo, & Bahr, 2017). In Asian societies where upholding smooth interpersonal relationships is highly encouraged, directly hiding or inhibiting negative emotional reactions may prevent relational conflicts.

The most important theoretical contribution of our research points to the mediating role of cognitive reappraisal on the link of gratitude, *perseverance*, and *adaptability* to psychological flourishing. Our findings suggest that espousing a sense of gratefulness as well as persistence and adaptability for long-term goals may be related to elevated levels of cognitive reappraisal or capacity to reinterpret meanings of emotional events. In turn, the increased cognitive reappraisal may be associated with higher intensity of psychological flourishing. These results align with the fundamental tenets of *conservation of resources theory* (Hobfoll, 2002) which emphasizes the benefits of accumulating multiple psychological resources to combat the maladaptive effects of variety of stressors in one's life.

However, our study has a few limitations. First, as we used a correlational design, it is not possible to clearly draw causal inferences from the findings of this study.

This shortcoming can be addressed through conducting longitudinal, and experimental research approaches. Second, our reliance on self-reported measures of gratitude, grit, emotion regulation, and flourishing may increase the possibility of social desirability bias. The Cronbach's alpha coefficients of gratitude and TMG's consistency subscales were also low so caution should be observed when interpreting the findings of this study. Future studies can improve this methodological flaw through using alternative techniques in measuring explanatory and outcome variables. Third, we only recruited our sample from a government secondary school in the Philippines so the results of our study may not be generalizable in other non-Western settings.

Nonetheless, our research has implications for the existing grit literature. Although previous studies have shown that grit matters for subjective well-being and meaning in life (Datu et al., 2016, 2018b, 2019; Hill et al., 2016; Jin & Kim, 2017; Kleiman et al., 2013), these studies did not pay attention to how grit relates to other models of psychological well-being. Our study builds on this line of evidence through showing that TMG dimensions (i.e., *perseverance* and *adaptability*) were related to increased psychological flourishing in selected Filipino high school students. Further, this study is the first to demonstrate the mediating role of emotion regulation approaches on the association between TMG dimensions and flourishing. Indeed, results of this study might offer better understanding on the complex psychological mechanisms underlying the complex link of grit to well-being and mental health functioning.

Our research has practical implications. School psychologists and guidance counselors are encouraged to design mental health programs that harness the power of gratitude, *perseverance*, and *adaptability*. School psychologists and teachers can also collaborate on creating low-intensity psychological interventions that aim to cultivate students' capacity to effectively manage their emotions especially in challenging times. For instance, teachers of moral or values education can design diary or journal activities which may require students to identify: (a) undesirable situations they faced throughout the week; (b) their immediate thoughts or interpretations of such experiences; (c) immediate emotional reactions; (d) alternative interpretations that may reduce negative emotional reactions; and (e) emotional consequences of alternative thoughts. In general, findings indirectly point to the psychological rewards associated with cultivating non-cognitive skills in children and adolescents.

Acknowledgements This research was funded by the Internal Research Grant (Grant # RG 90/2017-2018R) from The Education University of Hong Kong awarded to the second author.

References

- Baumsteiger, R., Mangan, S., Bronk, K. C., & Bono, G. (2019). An integrative intervention for cultivating gratitude among adolescents and young adults. *Journal of Positive Psychology, 14* (6), 807–819. <https://doi.org/10.1080/17439760.2019.1579356>.
- Chopik, W. J., Newton, N. J., Ryan, L. H., Kashdan, T. B., & Jarden, A. J. (2019). Gratitude across the lifespan: Age differences and links to subjective well-being. *Journal of Positive Psychology, 14*(3), 292–302. <https://doi.org/10.1080/17439760.2017.1414296>.
- Clark, K. N., & Malecki, C. K. (2019). Academic grit scale: Psychometric properties and associations with achievement and life satisfaction. *Journal of School Psychology, 72*, 49–66. <https://doi.org/10.1016/j.jsp.2018.12.001>.
- Credé, M. (2018). What shall we do about grit? A critical review of what we know and what we don't know. *Educational Researcher, 47*, 606–611. <https://doi.org/10.3102/0013189X18801322>.
- Credé, M. (2019). Total grit score does not represent perseverance. *Proceedings of the National Academy of Sciences of the United States of America, 116*, 3941. <https://doi.org/10.1073/pnas.1816934116>.
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology, 113*, 492–511. <https://doi.org/10.1037/pspp0000102>.
- Datu, J. A. D. (2014). Forgiveness, gratitude, and subjective wellbeing among Filipino adolescents. *International Journal for the Advancement of Counseling, 36*, 262–273. <https://psycnet.apa.org/doi/10.1007/s10447-013-9205-9>.
- Datu, J. A. D., King, R. B., Valdez, J. P. M., & Eala, M. S. (2019). Grit is associated with lower depression via meaning in life among Filipino high school students. *Youth & Society, 51*, 865–876. <https://doi.org/10.1177/0044118X18760402>.
- Datu, J. A. D., & Mateo, N. J. (2015). Gratitude and life satisfaction among Filipino adolescents: The mediating role of meaning in life. *International Journal for the Advancement of Counseling, 37*, 198–206. <https://psycnet.apa.org/doi/10.1007/s10447-015-9238-3>.
- Datu, J. A. D., Valdez, J. P. M., & King, R. B. (2016). Perseverance counts but consistency does not! Validating the short-grit scale in a collectivist setting. *Current Psychology, 35*, 121–130. <https://doi.org/10.1007/s12144-015-9374-2>.
- Datu, J. A. D., Yuen, M., & Chen, G. (2017). Development and validation of the triarchic model of grit scale (TMGS): Evidence from Filipino undergraduate students. *Personality and Individual Differences, 114*, 198–205. <https://doi.org/10.1016/j.paid.2017.04.012>.
- Datu, J. A. D., Yuen, M., & Chen, G. (2018a). Exploring determination for long-term goals in a collectivist context: A qualitative study. *Current Psychology, 37*, 263–271. <https://doi.org/10.1007/s12144-016-9509-0>.
- Datu, J. A. D., Yuen, M., & Chen, G. (2018b). The triarchic model of grit is linked to academic success and well-being among Filipino high school students. *School Psychology Quarterly, 33*, 428–438. <https://doi.org/10.1037/spq0000234>.
- Deng, Y., Xiang, R., Zhu, Y., Li, Y., Yu, S., & Liu, X. (2019). Counting blessings and sharing gratitude in a Chinese prisoner sample: Effects of gratitude-based interventions on subjective Well-being and aggression. *Journal of Positive Psychology, 14*(3), 303–311. <https://doi.org/10.1080/17439760.2018.1460687>.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2009). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research, 39*, 247–266. https://doi.org/10.1007/978-90-481-2354-4_12.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology, 92*, 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>.

- Flinchbaugh, C. L., Moore, E. W. G., Chang, Y. K., & May, D. R. (2012). Student well-being interventions: The effects of stress-management techniques and gratitude journaling in the management education classroom. *Journal of Management Education*, *36*(2), 191–219. <https://doi.org/10.1177/2F1052562911430062>.
- Froh, J. J., Kashdan, T. B., Ozimkowski, K. M., & Miller, N. (2009). Who benefits most from a gratitude intervention in children and adolescents? Examining positive affect as a moderator. *Journal of Positive Psychology*, *4*, 408–422. <https://doi.org/10.1080/17439760902992464>.
- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion*, *13*, 551–573. <https://doi.org/10.1080/026999399379186>.
- Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*, 281–291. <https://doi.org/10.1017/S0048577201393198>.
- Gross, J. J., & Barrett, L. F. (2011). Emotion generation and emotion regulation: One or two depends on your point of view. *Emotion Review*, *3*, 8–16. <https://doi.org/10.1177/1754073910380974>.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*, 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>.
- Hill, P. L., Burrow, A. L., & Bronk, K. C. (2016). Persevering with positivity and purpose: An examination of purpose commitment and positive affect as predictors of grit. *Journal of Happiness Studies*, *17*, 257–269. <https://doi.org/10.1007/s10902-014-9593-5>.
- Hill, P. L., & Jackson, J. J. (2016). The invest-and-accrue model of conscientiousness. *Review of General Psychology*, *20*, 141–154. <https://doi.org/10.1037/gpr0000065>.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*, 307–324. <https://doi.org/10.1037/1089-2680.6.4.307>.
- Hobfoll, S. E., Stevens, N. R., & Zalta, A. K. (2015). Expanding the science of resilience: Conserving resources in the aid of adaptation. *Psychological Inquiry*, *26*, 174–180. <https://doi.org/10.1080/1047840X.2015.1002377>.
- Ivcevic, Z., & Brackett, M. (2014). Predicting school success: Comparing conscientiousness, grit, and emotion regulation ability. *Journal of Research in Personality*, *52*, 29–36. <https://doi.org/10.1016/j.jrp.2014.06.005>.
- Jackowska, M., Brown, J., Ronaldson, A., & Steptoe, A. (2016). The impact of a brief gratitude intervention on subjective well-being, biology and sleep. *Journal of Health Psychology*, *21*(10), 2207–2217. <https://doi.org/10.1177/1359105315572455>.
- Jayawickreme, E., Forgeard, M., & Seligman, M. (2012). The engine of well-being. *Review of General Psychology*, *16*, 327–342. <https://doi.org/10.1037/a0027990>.
- Jin, B., & Kim, J. (2017). Grit, basic needs satisfaction, and subjective well-being. *Journal of Individual Differences*, *38*, 29–35. <https://doi.org/10.1027/1614-0001/a000219>.
- Kleiman, E. M., Adams, L. M., Kashdan, T. B., & Riskind, J. H. (2013). Gratitude and grit indirectly reduce risk of suicidal ideations by enhancing meaning in life: Evidence for a mediated moderation model. *Journal of Research in Personality*, *47*, 539–546. <https://doi.org/10.1016/j.jrp.2013.04.007>.
- Lan, X., & Moscardino, U. (2019). Direct and interactive effects of perceived teacher-student relationship and grit on student wellbeing among stay-behind early adolescents in urban China. *Learning and Individual Differences*, *69*, 129–137. <https://doi.org/10.1016/j.lindif.2018.12.003>.
- Lee, W. W. S. (2017). Predicting community college students' psychological stress with grit and perception of failure. *Journal of Adolescence*, *60*, 148–152. <https://doi.org/10.1016/j.adolescence.2017.08.006>.
- Li, J., Lin, L., Zhao, Y., Chen, J., & Wang, S. (2018). Grittier Chinese adolescents are happier: The mediating role of mindfulness. *Personality and Individual Differences*, *131*, 232–237. <https://doi.org/10.1016/j.paid.2018.05.007>.

- Lu, Q., Tsai, W., Chu, Q., & Xie, J. (2018). Is emotion suppression harmful for Chinese American breast cancer survivors? *Journal of Psychosomatic Research*, *109*, 51–56. <https://doi.org/10.1016/j.jpsychores.2018.03.171>.
- McCullough, M. E., Emmons, R. A., & Tsang, J. (2002). The grateful disposition conceptual and empirical topography. *Journal of Personality and Social Psychology*, *82*, 112–127. <https://doi.org/10.1037/0022-3514.82.1.112>.
- Moore, R. C., Hussain, M. A., Watson, C. W. M., Fazeli, P. L., Marquine, M. J., Yarns, B. C., Jeste, D. V., & Moore, D. J. (2018). Grit and ambition are associated with better neurocognitive and everyday functioning among adults living with HIV. *AIDS and Behavior*, *22*, 3214–3225. <https://doi.org/10.1007/s10461-018-2061-1>.
- Musumari, P. M., Tangmunkongvorakul, A., Srithanaviboonchai, K., Techasrivichien, T., Suguimoto, S. P., Ono-Kihara, M., et al. (2018). Grit is associated with lower level of depression and anxiety among university students in Chiang Mai, Thailand: A cross-sectional study. *PLoS One*, *13*(12), e0209121. <https://doi.org/10.1371/journal.pone.0209121>.
- Rash, J. A., Matsuba, M. K., & Prkachin, K. M. (2011). Gratitude and well-being: Who benefits the most from a gratitude intervention? *Applied Psychology: Health and Well-being*, *3*(3), 350–369. <https://doi.org/10.1111/j.1758-0854.2011.01058.x>.
- Rey, L., Quintana-Orts, C., Merida-Lopez, S., & Extremera, N. (2019). Being bullied at school: Gratitude as potential protective factor for suicide risk in adolescents. *Frontiers in Psychology*, *10*, 62. <https://doi.org/10.3389/fpsyg.2019.00662>.
- Salces-Cubero, I. M., Ramírez-Fernández, E., & OrtegaMartínez, A. R. (2018). Strengths in older adults: Differential effect of savoring, gratitude and optimism on well-being. *Aging & Mental Health*, *23*(8), 1017–1024. <https://doi.org/10.1080/13607863.2018.1471585>.
- Salles, A., Cohen, G. L., & Mueller, C. M. (2014). The relationship between grit and resident well-being. *American Journal of Surgery*, *207*, 251–254. <https://doi.org/10.1016/j.amjsurg.2013.09.006>.
- Schnitker, S. A., & Richardson, K. L. (2019). Framing gratitude journaling as prayer amplifies its hedonic and eudaimonic well-being, but not health, benefits. *Journal of Positive Psychology*, *14* (4), 427–439. <https://doi.org/10.1080/17439760.2018.1460690>.
- Sharkey, C. M., Bakula, D. M., Baraldi, A. N., Perez, M. N., Suorsa, K. I., Chaney, J. M., & Mullins, L. L. (2018). Grit, illness-related distress, and psychosocial outcomes in college students with a chronic medical condition: A path analysis. *Journal of Pediatric Psychology*, *43*, 552–560. <https://doi.org/10.1093/jpepsy/jsx145>.
- Southwell, S., & Gould, E. (2017). A randomized wait list controlled pre-post-follow-up trial of a gratitude diary with a distressed sample. *Journal of Positive Psychology*, *12*(6), 579–593. <https://doi.org/10.1080/17439760.2016.1221127>.
- Suh, E. M. (2007). Downsides of an overly context-sensitive self: Implications from the culture and subjective well-being research. *Journal of Personality*, *75*, 1321–1343. <https://doi.org/10.1111/j.1467-6494.2007.00477.x>.
- Tsai, W., Lau, A. S., Nguyen, J., Ngo, V., & Bahr, W. (2017). Cultural differences in the reciprocal relations between emotion suppression coping, depressive symptoms and interpersonal functioning among adolescents. *Journal of Abnormal Child Psychology*, *45*, 657–669. <https://doi.org/10.1007/s10802-016-0192-2>.
- Vainio, M. M., & Daukantaitė, D. (2015). Grit and different aspects of well-being: Direct and indirect relationships via sense of coherence and authenticity. *Journal of Happiness Studies*, *17*, 1–29. <https://doi.org/10.1007/s10902-015-9688-7>.
- Valdez, J. P. M., & Chu, S. K. W. (2019). Examining the psychometric validity of the five-item gratitude questionnaire: An item response theory approach. *Journal of Psychoeducational Assessment*. <https://doi.org/10.1177/0734282918816542>.
- Witvliet, C. V. O., Richie, F. J., Root Luna, L. M., & Van Tongeren, D. R. (2019). Gratitude predicts hope and happiness: A two-study assessment of traits and states. *Journal of Positive Psychology*, *14*(3), 271–282. <https://doi.org/10.1080/17439760.2018.1424924>.

- Wood, A. M., Joseph, S., & Maltby, J. (2009). Gratitude predicts psychological well-being above the big five facets. *Personality and Individual Differences, 45*, 49–54. <https://doi.org/10.1016/j.paid.2008.11.012>.
- Yu, H., Cai, Q., Shen, B., Gao, X., & Zhou, X. (2016). Neural substrates and social consequences of interpersonal gratitude: Intention matters. *Emotion, 17*(4), 589–601. <https://doi.org/10.1037/emo0000258>.

Jana Patricia Millonado Valdez is a part-time Lecturer in the Department of Management of Hong Kong Baptist University. Broadly speaking, she is a gratitude scientist specializing on interventions that cultivate grateful disposition and emotions among student populations. She also explores how technological platforms can promote well-being and academic success.

Jesus Alfonso Daep Datu is an Assistant Professor in the Department of Special Education and Counselling at The Education University of Hong Kong. He is also an affiliated researcher in the Integrated Centre for Well-being (I-WELL) in the same university. He is a well-being scientist with expertise in *positive psychology* and *positive education*. Currently, he is an Associate Editor of *Journal of Happiness Studies*, *School Psychology International*, and *International Journal of Disability, Development, and Education*. He is also on the editorial boards of *School Psychology* (formerly *School Psychology Quarterly*), *International Journal of Applied Positive Psychology*, *Current Psychology*, and *Educational Psychology: An International Journal of Experimental Educational Psychology*.