

Llewellyn Ellardus van Zyl
Chantal Olckers
Leoni van der Vaart *Editors*

Multidisciplinary Perspectives on Grit

Contemporary Theories, Assessments,
Applications and Critiques

 Springer

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This book is dedicated to all those frontline health workers who showed immense GRIT in helping to combat the global COVID-19 health crisis. Your passion for your work and perseverance in these tough times are truly inspiring.

Foreword

Performance in its purest form is more than just the culmination of individuals' cognitive (cap)abilities, potential or "talents"; it has to do with sustained, enduring effort one exerts over time in achieving one's goals (perseverance of effort), the passion one has for one's work/studies (consistency in effort) and the extent towards which one can actively adapt to changing environments (environmental agility). . . In effect, it has to do with grit! Originally conceptualized by Duckworth et al. (2007) as a non-cognitive trait associated with the perseverance and passion for long-term goals, grit has shown to be an important explanatory factor in achievement theory as a means to explain why some individuals with lower levels of externally perceived "talent" tend to perform better than their highly cognitively gifted counterparts. Research has shown that gritty individuals are more engaged, motivated, happier, healthier and more successful than those who report low levels of grit. Further, grit has also shown to result in various positive team, family, organization and societal outcomes. As such, it is not surprising that popular media hailed grit as "the new gold standard" for predicting life, school, career and job-related success.

However, despite its widespread popularity within mass media and the popular psychology press, academic studies on grit are still in their infancy. There seems to be little consensus in the literature as to how grit should be conceptualized, measured or managed and how it differs from other constructs such as conscientiousness, diligence or determination. This lack in consensus has resulted in various *specific* criticisms of the construct and led to various new "theories", psychometric instruments and interventions to rapidly emerge in the literature. This rapid emergence of new theories could lead to either seminal advancements in our understanding of grit or could lead grit to becoming yet another victim of the "jingle-jangle fallacy". Therefore, a thorough reappraisal and consolidation as to the nature of grit, how it should or could be measured and how it could be developed is needed. Further, a consolidated narrative as to the criticisms of grit is also required in order to ensure that future research can actively address such in a systematic, rigorous and scientific fashion.

As such, the purpose of this book is to address these challenges through providing a platform to curate contemporary theories of grit, to discuss ways in which it could

be rigorously measured and developed, to investigate its relationship with performance-related metrics and to collate the collective criticisms of grit. This book aimed to provide a comprehensive and balanced perspective on grit with the intent to effectively advance the science of achievement.

It is my hope that this book will stimulate further scientific debate on grit and empower gritty researchers to not shy away from criticisms or critiques, but to actively embrace them.

Eindhoven, the Netherlands
February 2021

Llewellyn Ellardus van Zyl

Preface

This volume provides a multidisciplinary perspective on the conceptualization, measurement and development of grit. Specifically, it provides a comprehensive and balanced retort to the criticisms associated with the construct within the contemporary positive psychological literature. Written by a team of multidisciplinary experts in fields ranging from neuroscience, sociology and education to human resource management and psychology, this volume of 13 chapters firmly positions grit within the discipline of positive psychology's nomological lexicon. Each of the 13 chapters of this book makes a unique contribution to our theoretical understanding of grit and aims to provide a retort to contemporary criticisms.

Chapter 1 assesses the association of grit and gratitude on flourishing and how emotion regulation strategies such as cognitive reappraisal and expressive suppression could serve as psychological mechanisms in enhancing this relationship in a collectivist setting. Chapter 2 investigates how grit develops the capacity to regulate better and rebuild personal resources needed for achieving long-term goals through resilience by developing adequate recovery strategies. Chapter 3 examines the role of grit vis-à-vis four psychosocial factors (i.e. conscientiousness, academic self-concept, other-based achievement goals and competence expectancy) in predicting student math performance and subjective well-being in a Chinese context. Chapter 4 explores whether perseverance of effort has the potential to provide compensatory effects in students' engagement, self-perceived gains, time spent studying and GPA for historically underrepresented students to help them overcome obstacles to their student success. Chapter 5 presents the possibility of enhancing grit with longitudinal data and neuropsychological findings on brain development. Intervention strategies are proposed for the cognitive, behavioural and emotional domains of grit. Chapter 6 examines whether high levels of grit may provide a buffer against chronic stress in college students and result in fewer academic problems.

Chapter 7 focuses on determining the effectiveness of a ninth-grade English-language arts curriculum designed to enhance grit at a rural public high school. This chapter also indicates how the task performance of these students can be increased by utilizing multiple motivational theories of achievement to assist students in building grit in their academic careers. Chapter 8 uses item response theory and

structural equation modelling approaches to explore whether grit is measured as a higher-order construct comprising two facets: perseverance of effort and consistency of interests or better measured as two separate constructs. Chapter 9 systematically reviews several studies to uncover the neuroanatomical mechanism of grit to explore if differences in grit are caused by underlying structural and functional variations in the brain. Chapter 10 determines whether two potential antecedents of grit, rumination and hope, would predict changes in grit over time by conducting a cross-lag path analysis on a longitudinal dataset. Specifically, this chapter explores if individuals who tend to engage in less rumination, and who are more hopeful, are more likely to become “grittier” over time. Chapter 11 uses data from a national longitudinal study of educational trajectories of school and university leavers in Russia to assess whether grit (i.e. perseverance of effort and consistency of interests) can predict long-term educational outcomes while controlling for several variables. Chapter 12 applies the distal-proximal framework to theoretically explore whether grit, as a trait, could play a role in enhancing employees’ task performance and perceptions of career through a proximate, domain-specific flexible psychological construct such as psychological ownership. Chapter 13 argues how self-determination theory (SDT) could be used to create a need-supportive environment that strengthens the effect of grit interventions while enhancing client adherence and engagement for the unemployed.

We hope that these 13 chapters would provide readers with a framework for advancing the science underpinning grit and that it lays the foundation for meaningful scientific debates, scholarly commentary and academic research.

Eindhoven, the Netherlands
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Llewellyn Ellardus van Zyl
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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

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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		
Paths	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.