The Spanish Journal of Psychology (2017), **20**, e45, 1–7.

doi:10.1017/sjp.2017.51

Validation of the Gratitude Questionnaire in Filipino Secondary School Students

Jana Patricia M. Valdez, Weipeng Yang and Jesus Alfonso D. Datu

The University of Hong Kong (China)

Abstract. Most studies have assessed the psychometric properties of the Gratitude Questionnaire – Six-Item Form (GQ-6) in the Western contexts while very few research has been generated to explore the applicability of this scale in non-Western settings. To address this gap, the aim of the study was to examine the factorial validity and gender invariance of the Gratitude Questionnaire in the Philippines through a construct validation approach. There were 383 Filipino high school students who participated in the research. In terms of within-network construct validity, results of confirmatory factor analyses revealed that the five-item version of the questionnaire (GQ-5) had better fit compared to the original six-item version of the gratitude questionnaire. The scores from the GQ-5 also exhibited invariance across gender. Between-network construct validation showed that gratitude was associated with higher levels of academic achievement ($\beta = .46$, $p < .001$), autonomous motivation ($\beta = .73$, $p < .001$), and controlled motivation ($\beta = .28$, $p < .01$). Conversely, gratitude was linked to lower degree of amotivation ($\beta = -.51$, $p < .001$). Theoretical and practical implications are discussed.

Received 16 August 2016; Revised 2 August 2017; Accepted 19 September 2017

Keywords: academic achievement, gratitude, motivation.

Gratitude pertains to "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). To assess individual differences in gratitude, McCullough et al. (2002) developed the Gratitude Questionnaire-Six Item Form (GQ-6), a six-item self-report measure of gratitude. The authors found that GQ-6 yielded excellent psychometric properties across university and adult samples. Other studies have found that the scores from GQ-6 were valid and reliable in a sample American middle to high school students (Froh et al., 2011b) and adult samples (Kashdan, Mishra, Breen, & Froh, 2009).

Previous research indicates that gratitude is associated with a wide range of positive psychological outcomes (see Renshaw & Steeves, 2016 for a review). Gratitude is linked to higher positive affect (McCullough et al., 2002) and life satisfaction (Datu, 2014; Datu & Mateo, 2015; Froh, Emmons, Card, Bono, & Wilson, 2011; McCullough et al., 2002; Wood, Joseph, & Maltby, 2008; 2009). Conversely, gratitude is associated with lower depression (Froh et al., 2011a; Froh et al., 2011b; McCullough et al., 2002), negative affect (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008) and stress (McCullough et al., 2002; Wood, Maltby, Gillett, Linley, & Joseph, 2008). To explore the beneficial value of gratitude in the educational context, Froh et al. (2011a) assessed the association of gratitude with academic outcomes and found that grateful students are likely to get higher grades and achieve greater well-being. These findings point to the importance of giving attention to non-academic skills such as gratitude to improve students' well-being which may also contribute to their academic performance.

The broaden-and-build theory (Fredrickson, 2001) is one of the potential frameworks that can explain why gratitude may be associated with optimal psychological outcomes. The model argues that positive emotional states (i.e., feeling grateful) are valuable because they enable broadening of thought-action repertoires that are essential in acquiring durable physical, social, and psychological resources. As feeling grateful involves the appreciation of relevant things, people, or events, it is likely that this affective state may foster a positive mindset that can catalyze durable resources (i.e., resilience and physical health). In the current study, we operationalized gratitude as a positive affective state that may build important educational resources like academic achievement and motivation.

Despite the bulk of evidence regarding the theoretical value of the gratitude construct, limited research

Correspondence concerning this article should be addressed to Jesus Alfonso D. Datu. Room 525. Meng Wah Complex. The University of Hong Kong. Hong Kong (China).
E-mail: jess.datu@yahoo.com

How to cite this article:
Valdez, J. P. M., Yang, W., & Datu, J. A. D. (2017). Validation of the Gratitude Questionnaire in Filipino secondary school students. *The Spanish Journal of Psychology, 20*. eXX. Doi:10.1017/sjp.2017.51

has been done to evaluate the psychometric properties of GQ-6. Limited research was also conducted that assessed the linkage of gratitude to academic outcomes especially in non-Western and collectivist settings (i.e., Philippines). Previous studies primarily focused on GQ-6's factor structure and its association with well-being outcomes (i.e., mainland Chinese, Taiwanese, and Filipino samples; Chen, Chen, Kee, & Tsai, 2009; Chen & Kee, 2008; Datu, 2014; Datu & Mateo, 2015; Zeng, Ling, Huebner, He, & Lei, 2017).

Of these studies, only the studies of Chen et al. (2009) and Zeng et al. (2017) have examined the validity and reliability of the GQ-6 among Taiwanese undergraduate students and Chinese middle school students respectively. Contrary to what has been found in the existing literature, Chen et al. (2009) shows that the 5-item version of the gratitude questionnaire (GQ-5) yielded more superior psychometric properties (CFI = .99; SRMR = .02; RMSEA = .07) than the original 6-item version of the scale. In particular, item no. 6 ("Long amounts of time can go by before I feel grateful to something or someone") was removed because the scores from the 6-item scale yielded poor fit indices (e.g., Comparative Fit Index or CFI = .94; Standardized Root Mean Squared Residual or SRMR = .07; Root Mean Square Error of Approximation or RMSEA = .12). Furthermore, Zeng et al. (2017) have offered an additional evidence about the psychometric validity, reliability, and gender invariance of GQ-5 in a sample of Chinese middle school students. The authors have also shown that gratitude was associated with higher extent of hope and students' life satisfaction.

Similarly, Langer, Ulloa, Aguilar-Parra, Araya-Véliz, and Brito (2016) have examined the psychometric properties of the GQ-6 and GQ-5. Specifically, in a sample of Chilean adult and adolescents, they have found that the scores from the GQ-5 had better fit than the GQ-6. They have also demonstrated that gratitude is linked to lower levels of depression and higher levels of subjective happiness.

Furthermore, as previous studies concentrated on exploring the association of gratitude with school adjustment and well-being outcomes, Renshaw and Steeves (2016) point out that "there is little evidence to suggest that gratitude in youth has practically meaningful associations with performance-based or informant-rated variables that educators and school psychologists tend to value" (p. 300). Although Froh et al. (2011b) have assessed the relationship between gratitude and academic outcomes in the Western context, the study did not explicitly examine the factorial validity of the gratitude questionnaire. Clearly, more research is needed to assess the linkage of gratitude to relevant educational outcomes.

Therefore, the primary objective of the study was to assess the psychometric properties and gender invariance of GQ-6 through a construct validation approach (Martin, 2007) among Filipino secondary school students. This validation technique involves examining the within-network validity (through confirmatory factor analyses and reliability analyses) and between-network validity (exploring the correlation of gratitude with academic motivation and achievement) of the GQ-6. Unlike previous validation studies that focused on examining how gratitude was related to well-being indices to provide evidence about the scale's criterion related validity (Chen et al., 2009; Langer et al., 2016), our study assessed the association of gratitude with amotivation, controlled, and autonomous motivation. Amotivation refers to lack or absence of motivation to engage in academic task (Deci & Ryan, 2000). Controlled motivation pertains to one's drive to perform academic activities due to extrinsic reasons such as getting external incentives, avoiding punishment, or feeling guilt for not doing a specific task (Shahar, Henrich, Blatt, Ryan, & Little, 2003). Autonomous motivation refers to a drive to accomplish academic tasks for the sake of having personal fulfillment (Shahar et al., 2003).

We hypothesized that gratitude would be positively associated with autonomous motivation, controlled motivation, and academic achievement because the broaden-and-build theory (Fredrickson, 2001) argues that positive affective states like feeling grateful may not only broaden mindsets but will also promote approach-related behaviors and durable resources. Alternatively, gratitude would be negatively linked to amotivation.

Methods

Participants

There were 383 Filipino high school students from a public secondary school who participated in the research. The average of the participants was 14.23 (*SD* = 1.92). There were 172 boys and 211 girls. The sample was composed of 107 grade 7, 81 grade 8, 116 grade 9, and 79 grade 10 students.

Procedures

The third author sought approval from the school administrators (i.e., principal and subject area coordinator) to collect data from the secondary school. After getting the approval from the school, parents were given passive consent forms and each student-participant was given an active consent form. Then, the questionnaire on gratitude and academic motivation were administered.

https://doi.org/10.1017/sjp.2017.51 Published online by Cambridge University Press

Measures

Gratitude

The GQ-6 (McCullough et al., 2002) was used to assess gratitude. The items were marked on a 7-point likert scale (1 = *Strongly disagree;* 7 = *Strongly agree*). Here is a sample item in the scale: "I feel thankful for what I have received in life."

Academic motivation

The 22-item Academic Motivation Scale (Caleon et al., 2015) was utilized to measure amotivation, controlled, and autonomous motivation. Items were rated on a 7-point likert scale (1 = *Very untrue of me*; 7 = *Very true of me*). Here are sample items in the scale: "Honestly I don't know, I really feel that I am wasting my time in school" (amotivation); "Because I feel happy and satisfied when learning new things" (autonomous); and "Because when I succeed in school, I feel important" (controlled). The Cronbach's alpha reliability coefficients of the subscales were: amotivation (α .86), controlled motivation (α .85), and autonomous motivation (α .92).

The English versions of the questionnaires were used in the study.

Academic achievement

The participants' actual grade point average on all the subjects (English, Math, Science, Filipino, Social Sciences, etc.) in third grading period of the school year was collected from the objective school record of their respective class advisers. The grade point average ranged from 0–100 with higher ratings indicating better academic achievement.

Data analyses

We calculated the descriptive statistical values, reliability coefficients, along with the skewness and kurtoses of all the items in GQ-6 using the 23rd version of Statistical Package for the Social Sciences (SPSS). Next, we conducted confirmatory factor analyses (CFA) via the 23rd version of Analysis of Moment Structures (AMOS) to assess the applicability of the hypothesized and alternative measurement models in the present sample. Consistent to what have been carried out in previous validation studies (Datu, 2015; King, Ganotice, & Watkins, 2012), we randomly divided our sample into exploratory (n = 192) and cross-validation (n = 191) samples. Then, the model with better fit indices has been tested in the total sample (n = 383). Model 1, which involved a single-factor model with six item indicators (representing the original GQ-6 items), was tested in the exploratory sample. Consistent with the findings of Chen et al. (2009), an alternative model of gratitude was tested in the cross-validation sample (Model 2) which involved a single-factor model with five item indicators. Based on the results of CFA for exploratory and cross-validation samples, the measurement model with better fit was tested to the total sample. To evaluate the fit of the proposed measurement models, we relied on the criteria of Byrne (2001) which recommended the following cut-off values: a) goodness of fit index (GFI), comparative fit index (CFI), Tucker Lewis index (TLI) were lower than .90; and b) Root mean square error of approximation (RMSEA) was higher than .08. We also tested whether gratitude would have the same meaning across gender through multi-group CFA. In particular, we assessed the following degree of invariance were achieved: a) configural invariance (equal number of factors and pattern-indicator loading); b) metric invariance (equal factor loading); c) scalar invariance (equal factor variance and covariance); and d) residual variance invariance (equal error variance and covariance). Consistent with one of the recommended criteria of Chen (2007), we concluded that invariance was met if the change in RMSEA is lower than .01. To examine between-network construct validity, we performed regression analyses using SPSS to assess the extent to which gratitude may be associated with academic achievement and motivation after controlling for the potential effects of age and gender.

Results

A review of the item descriptive statistics showed that the skewness and kurtosis values did not exceed 2 and 7, indications that there were no severe violations of normality (Finney & DiStefano, 2006). Even the Mahalanobis distance values indicate absence of multivariate outliers. Hence, we performed confirmatory factor analyses (CFA) through maximum likelihood estimation approach since the preliminary analyses suggest that the dataset appears to be normally distributed.

To assess the within-network validity of the GQ-6, we conducted separate CFA across our randomly divided exploratory (n = 192), cross-validation (n = 191), and total (n = 383) samples (See Table 1). Results of CFA in the 6-item version of the GQ-6 (Model 1) in the exploratory sample showed low fit: $\chi^2 = 52.49$, $df = 9$, $p < .001$, CFI = .89, GFI = .92, TLI = .81, and RMSEA = .16 (.12 – .20). The alternative model (Model 2) after removing item 6 ("Long amounts of time can go by before I feel grateful to something or someone.") yielded better fit than the hypothesized model: $\chi^2 = 14.28$, $df = 5$, $p < .001$, CFI = .97, GFI = .97, TLI = .93, and RMSEA = .08 (.04 – .16). Hence, we adopted the alternative model and tested it to our total sample. The results of CFA for the total sample (Model 3; See Figure 1) showed a good fit: $\chi^2 = 20.70$,

https://doi.org/10.1017/sjp.2017.51 Published online by Cambridge University Press

Table 1. *Confirmatory factor analyses of the GQ6*

Model	χ^2	*df*	*p*	χ^2/df	CFI	GFI	TLI	RMSEA (90% CI)
Original six-item GQ6 (Exploratory sample)	52.49	9	.001	5.83	.89	.92	.81	.16 (.12, .20)
Five-item GQ version (Cross-validation sample)	14.28	5	.01	2.86	.97	.97	.93	.08 (.04, .16)
Five-item GQ version (Total sample)	20.70	5	.001	4.14	.98	.98	.95	.08 (.05, .13)

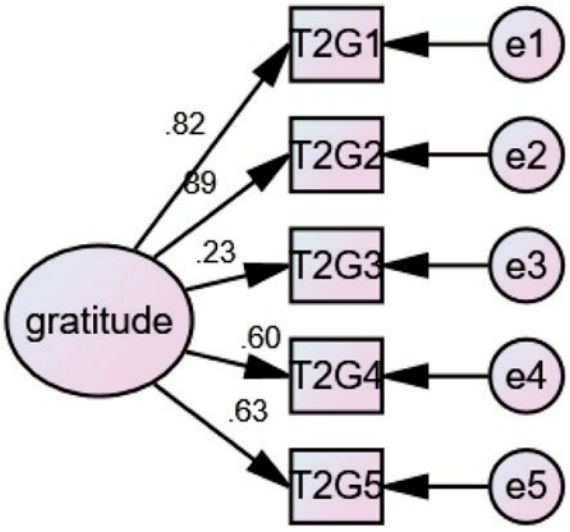

Figure 1. Final measurement model of gratitude.

df = 5, *p* < .001, CFI = .98, GFI = .98, TLI = .95, and RMSEA = .08 (.05 – .13). The fit indices of the above-mentioned models are shown in Table 1. All the items significantly loaded at *p* < .001.

Multi-group CFA was conducted to examine gender invariance of Model 2 in the current sample. The results demonstrated the scores from the 5-item version of the gratitude questionnaire exhibited configural, metric, scalar, and residual variance invariance as the differences in RMSEA (ΔRMSEA) were less than .01 (See Table 2).

The scale had also a moderate Cronbach's reliability coefficient (α = .74). Results of descriptive statistical and reliability analyses are shown in Table 3.

In terms of between-network construct validity, the results of hierarchical regression analyses showed that gratitude was associated with higher degree of autonomous motivation β = .73, *p* < .001, controlled motivation β = .28, *p* < .001, and academic achievement β = .43, *p* < .001 even after controlling for age, gender, and year level (See Table 4). Conversely, gratitude was linked to lower levels of amotivation β = –.51, *p* < .001 after controlling for the aforementioned demographic variables. These findings indicate that gratitude accounted for 7.84% to 53.29% of the variance in academic achievement and motivation. Conversion of the coefficients of determination values to Cohen's d showed that the effect sizes between gratitude and academic outcomes ranged from *d* = *.58* to *d* = *2.14*. The magnitude of effect sizes may be interpreted as medium to large effects with reference to the criteria of Cohen (1988).

Discussion

The main objective of our study was to assess the psychometric validity and gender invariance of the Gratitude Questionnaire-Six Item Form (GQ-6) in Filipino high school students through a construct validation approach. Results of the study corroborated with our theoretical expectations and existing literature on gratitude measurement.

Consistent with the existing line of evidence on the validity of gratitude questionnaires in collectivist societies (Chen et al., 2009; Langer et al., 2016; Zeng et al., 2017), results of within-network construct validity indicated that compared to the original 6-item version of the gratitude questionnaire, the 5-item version of the scale appears to be more applicable to secondary school students especially in the Philippine setting. Our study also demonstrated that the scores from GQ-5 were reliable and invariant across gender which corroborated the results in previous investigations (Langer et al., 2016; Zeng et al., 2017). This indicates that gratitude

Table 2. *Invariance of the gratitude across gender*

Model	χ^2	*df*	*p*	CFI	GFI	RMSEA (90% CI)	ΔRMSEA
Model 1 Configural	24.29	20	<.01	.98	.98	.061 (.03 – .09)	–
Model 2 Metric	37.69	16	<.001	.96	.96	.067 (.04 – .09)	.006
Model 3 Scalar	41.89	15	<.001	.95	.96	.069 (.04 – .09)	.002
Model 4 Residual variance	57.15	10	<.001	.94	.95	.070 (.05 – .09)	.001

https://doi.org/10.1017/sjp.2017.51 Published online by Cambridge University Press

Table 3. *Descriptive statistics and reliability coefficients of the scales*

Variable	α	*M*	*SD*
Gratitude	.74	5.32	1.01
Amotivation	.86	3.51	1.56
Controlled motivation	.85	5.38	.92
Autonomous motivation	.92	5.54	.97
Academic achievement		81.47	5.54

may hold similar meaning for boys and girls in a collectivist context.

Similar to what has been found in the Western context (Froh et al., 2011a), our research showed that gratitude was associated with higher academic achievement. However, our study addressed the methodological gap in the investigation study of gratitude through using school records as a measure of academic performance. Furthermore, our study demonstrated that gratitude may be linked to autonomous motivation. To the best of our knowledge, this was the first study that utilized academic motivation and achievement about the criterion-related validity of GQ-5.

The positive association of gratitude with adaptive motivational orientations (e.g., autonomous motivation) and achievement corroborated the existing literature on the beneficial impact of gratitude in the school context (Datu, 2014; Datu & Mateo, 2015; Froh et al., 2011a; Froh et al., 2011b; Langer et al., 2016; McCullough et al., 2002; Renshaw & Steeves, 2016; Wood et al., 2008; 2009; Zeng et al., 2017). These results also supported the broaden-and-build theory (Fredrickson, 2001) which proposes that positive affective conditions (i.e., feeling of gratefulness) are valuable because these emotions can broaden mindsets and build essential resources that individuals can use in dealing with a wide range of real-life challenges.

Gratitude was also linked to higher controlled motivation. It is possible that gratitude may be associated with inclinations to study for external rewards and avoidance of guilt (controlled motivational orientation) because previous literature suggests that the extrinsic forms of motivation have advantageous impact in interdependent cultures (King & McInerney, 2014). Hence, it is likely that the extrinsic motivational orientation afforded by having greater gratitude may not always stunt positive academic functioning especially for students who are accustomed to cultures that reward socially-oriented academic motivation.

Our study has some limitations. The correlational nature of the study precludes us from forwarding causal conclusions between gratitude and educational outcomes. Future research can address this through adopting longitudinal and experimental designs to assess the linkage of gratitude to academic functioning. Furthermore, the between-network construct validation only concentrated on the association of gratitude with academic achievement and motivation. Hence, future studies are recommended to assess the link of gratitude to other under-explored educational outcomes like academic adjustment, academic resilience, and academic engagement to offer extensive insights about nomological network of gratitude in secondary student samples. As the study recruited Filipino secondary school students, the results may have limited generalizability for high school students in other collectivist societies. This can be addressed in future investigations through recruiting participants from other non-Western contexts (i.e., Japan, Vietnam, and South Korea). Investigating the measurement invariance of the GQ-5 in individualist and collectivist societies is an essential direction to provide evidence about the cross-cultural generalizability of this measure across cultures. Longitudinal validation of the GQ-5 is also needed to assess whether gratitude holds the same meaning over time in secondary school students.

Nonetheless, our study offers theoretical and practical implications. In terms of theory, our study contributed to the existing gratitude literature through demonstrating that the scores from GQ-5 was valid, reliable, and invariant across gender among high school students in the Philippine setting. We also offered new insights regarding the criterion-related validity of the GQ-5 as we concentrated on assessing how gratitude was related

Table 4. *Gratitude as a predictor of academic motivation and achievement*

	Amotivation	Controlled motivation	Autonomous motivation	Academic achievement
Step 1 Age	–.03*	.08	.05	.04
Gender	–.15	.14**	.18***	.22***
Year level	–.09	.16**	.17**	.29***
Step 2 Gratitude	–.51***	.28**	.73***	.46***
Change in R^2 step1	.03**	.06***	.07***	.14***
Change in R^2 step 2	.23***	.35***	.48***	.18***
Total R^2	.26***	.41***	.54***	.32***

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

https://doi.org/10.1017/sjp.2017.51 Published online by Cambridge University Press

to academic achievement and motivation while previous validation studies (Chen et al., 2009; Langer et al., 2016; Zeng et al., 2017) have explored the link of gratitude to well-being indices. Regarding practice, psychologists, counselors, and other allied health professional are recommended to use the 5-item version of the gratitude questionnaire when assessing the grateful dispositions of secondary school students in non-Western settings. The findings of between-network construct validation indicate that gratitude may be linked to higher academic achievement and motivation. This implies that aside from focusing on improving students' cognitive abilities, schools should also give attention in enhancing students' feeling of gratitude to develop their socio-emotional skills, increase their psychological well-being, and improve their academic performance. Psychologists and counselors are recommended to explore the possibility of cultivating non-cognitive traits (i.e., gratitude, grit, hope, and courage) when designing psychological programs for secondary school students.

References

Byrne B. M. (2001). *Structural equation modeling with Amos: Basic concepts, applications, and programming*. Mahwah, NJ: Erlbaum

Caleon I. S., Wui M. G. L., Tan J. P. L., Chiam C. L., Soon T. C., & King R. B. (2015). Cross-cultural validation of the Academic Motivation Scale: A Singapore investigation. *Child Indicators Research*, *8*, 925–942. https://doi.org/10.1007/s12187-014-9298-7

Chen F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*, 464–504. https://doi.org/10.1080/10705510701301834

Chen L. H., & Kee Y. H. (2008). Gratitude and adolescent athletes' well-being. *Social Indicators Research*, *89*, 361–373. https://doi.org/10.1007/s11205-008-9237-4

Chen L. H., Chen M.-Y., Kee Y. H., & Tsai Y.-M. (2009). Validation of the Gratitude Questionnaire (GQ) in Taiwanese undergraduate students. *Journal of Happiness Studies*, *10*, 655–664. https://doi.org/10.1007/s10902-008-9112-7

Cohen J. (1988). *Statistical power analysis for the behavioral sciences* (2nd Ed.). Hillsdale, NJ: Erlbaum.

Datu J. A. D. (2014). Forgiveness, gratitude and subjective well-being among Filipino adolescents. *International Journal for the Advancement of Counseling*, *36*, 262–273. https://doi.org/10.1007/s10447-013-9205-9

Datu J. A. D. (2015). Validating the revised self-construal scale in the Philippines. *Current Psychology*, *34*, 626–633. https://doi.org/10.1007/s12144-014-9275-9

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://doi.org/10.1007/s10447-015-9238-3

Deci E. L., & Ryan R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Emmons R. A., & McCullough M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, *84*, 377–389. https://doi.org/10.1037/0022-3514.84.2.377

Finney S. J., & DiStefano C. (2006). Non-normal and categorical data in structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 269–314). Greenwich, CT: Information Age.

Fredrickson B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Froh J. J., Emmons R. A., Card N. A., Bono G., & Wilson J. A. (2011a). Gratitude and the reduced costs of materialism in adolescents. *Journal of Happiness Studies*, *12*, 289–302. https://doi.org/10.1007/s10902-010-9195-9

Froh J. J., Fan J., Emmons R. A., Bono G., Huebner E. S., & Watkins P. (2011b). Measuring gratitude in youth: Assessing the psychometric properties of adult gratitude scales in children and adolescents. *Psychological Assessment*, *23*, 311–324. https://doi.org/10.1037/a0021590

Froh J. J., Sefick W. J., & Emmons R. A. (2008). Counting blessings in early adolescents: An experimental study of gratitude and subjective well-being. *Journal of School Psychology*, *46*, 213–233. https://doi.org/10.1016/j.jsp.2007.03.005

Kashdan T. B., Mishra A., Breen W. E., & Froh J. J. (2009). Gender differences in gratitude: Examining appraisals, narratives, the willingness to express emotions, and changes in psychological needs. *Journal of Personality*, *77*, 691–730. https://doi.org/10.1111/j.1467-6494.2009.00562.x

King R. B., Ganotice F. A., & Watkins D. A. (2012). Validation of the Chinese version of the sense of self (SOS) Scale. *Asia Pacific Education Review*, *13*, 323–331. https://doi.org/10.1007/s12564-011-9195-4

King R. B., & McInerney D. M. (2014). Culture's consequences on student motivation: Capturing cross-cultural universality and variability through personal investment theory. *Educational Psychologist*, *49*, 175–198. https://doi.org/10.1080/00461520.2014.926813

Langer A. I., Ulloa V. G., Aguilar-Parra J. M., Araya-Véliz C., & Brito G. (2016). Validation of a Spanish translation of the gratitude questionnaire (GQ-6) with Chilean sample of adults and high schoolers. *Health and Quality of Life Outcomes*, *14*, 53. https://doi.org/10.1186/s12955-016-0450-6

Martin A. J. (2007). Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology*, *77*, 413–440. https://doi.org/10.1348/000709906X118036

McCullough M. E., Emmons R. A., & Tsang J.-A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, *82*, 112–127. https://doi.org/10.1037/0022-3514.82.1.112

Renshaw T. L., & Steeves R. M. O. (2016). What good is gratitude in youth and schools? A systematic review and meta-analysis of correlates and intervention outcomes. *Psychology in the Schools*, *53*, 286–305. https://doi.org/10.1002/pits.21903

Shahar G., Henrich C. C., Blatt S. J., Ryan R., & Little T. D. (2003). Interpersonal relatedness, self-definition, and their motivational orientation during adolescence: A theoretical and empirical integration. *Developmental Psychology*, *39*, 470–483. https://doi.org/10.1037/0012-1649.39.3.470

Wood A. M., Joseph S., & Maltby J. (2008). Gratitude uniquely predicts satisfaction with life: Incremental validity above the domains and facets of the five factor model. *Personality and Individual Differences*, *45*, 49–54. https://doi.org/10.1016/j.paid.2008.02.019

Wood A. M., Joseph S., & Maltby J. (2009). Gratitude predicts psychological well-being above the big five facets. *Personality and Individual Differences*, *46*, 443–447. https://doi.org/10.1016/j.paid.2008.11.012

Wood A. M., Maltby J., Gillett R., Linley P. A., & Joseph S. (2008). The role of gratitude in the development of social support, stress, and depression: Two longitudinal studies. *Journal of Research in Personality*, *42*, 854–871. https://doi.org/10.1016/j.jrp.2007.11.003

Zeng Y., Ling Y., Huebner E. S., He Y., & Lei X. (2017). The Psychometric properties of the 5-item gratitude questionnaire (GQ-5) in Chinese adolescents. *Journal of Psychiatric and Mental Health Nursing*. Advance online publication. https://doi.org/10.1111/jpm.12372

https://doi.org/10.1017/sjp.2017.51 Published online by Cambridge University Press