

## ORIGINAL PAPER

## A Study Protocol on the Adaptation and Validation of the Malay Version of the Short Grit Scale (Grit-S) on Malaysian University Students

*Hezne Ezaty Abu Hasan and Jamilah Hanum Abdul Khaiyom*

Department of Psychology, International Islamic University Malaysia,  
Jalan Gombak, 53100 Kuala Lumpur, Malaysia

### Abstract

**Introduction:** Grit, an individual's perseverance and passion for long-term goals, is a mouldable construct with contributions to success in many life domains. Grit's cultivation in Malaysia can begin with a suitable instrument apt to measure it. The study aims to adapt and validate the Short Grit Scale (Grit-S), the Western-derived instrument to measure grit, as an economical justification to developing a new instrument, which is time consuming and costly. **Methods:** Employing a survey design, students from different faculties at one of the local universities in Klang Valley, Malaysia ( $N=350$ ) who are bilingual in English and Malay will be targeted. The adaptation process will begin with translation of the English items into Malay, while observing the guidelines suggested by the International Test Commission. Thereafter, the validation process of the Malay Grit-S with the criterion measures will follow. The IBM SPSS software will be used to analyse the internal-consistency, stability, and equivalence reliabilities, as well as the concurrent, convergent and divergent validities, alongside its factorial structure analysis. **Expected results:** The Malay Grit-S is expected to demonstrate a probable two-factor structure as was originally posited. However, dissimilarities may arise and can be attributed to cultural differences, as the collectivist setting of Malaysia differs from the individualist setting it was conceptualized in. **Conclusion:** With an adapted and validated instrument to measure grit specific to the Malaysian context, the study aspires to contribute to grit knowledge, as well as availing a fitting instrument for its measurement, which precedes efforts in fostering grit for positive life outcomes, particularly in academic and education settings.

**Keywords:** Grit, Positive Psychology, Reliability, Validity, Malaysia

### Introduction

Grit is depth, as opposed to breadth, in an interest and sustaining that interest over time

to achieve long-term goals, even when it is difficult, not enjoyable and absent of positive feedback. Grit has roots in Martin Seligman's positive psychology, which was

the theme for his presidency of the American Psychological Association in 1998 [1]. He opined that clinical psychology was half-baked, as it only focused on what was wrong with people, and not so much what was right them, thus neglecting their strengths. Grit is one such construct of strength, which is malleable and can be fostered through the psychological assets of interest, practice, purpose and hope [2].

Grit has been shown to have incremental validity of success over and beyond IQ [3,4]. Additionally, grit has been positively associated with academic performance [5], retention [6], optimism [7], psychological well-being [8], intended persistence in academic programs [9] and life satisfaction [10]. Grit is inversely related to psychological distress [11], depression [12] and suicide ideation [13]. A meta-analysis by Crede and colleagues [14] stated that grit's relation to academic performance and retention is only modest. Duckworth conceded in her correspondence with NPR Education [15]. However, it was added that even small improvements could be useful and have meaningful positive effects [14].

Moreover, conscientiousness, one of the Big Five personality traits [16] that is often linked to success, has strong relations with grit ( $r=.77$ ) [1]. Crede and colleagues [14] argued that grit overlaps highly with conscientiousness ( $\rho=.84$ ), implying redundancy. Duckworth in her rebuttal argument stated that grit differs due to the element of sustaining momentum over a long period [15].

Duckworth and colleagues conceptualized and posited grit as a two-factor hierarchical model [3,4]. The first domain of grit is consistency of interests, which denotes an individual's persistence in maintaining a specific interest over long periods of time,

without jumping to another interest. The second domain is perseverance of effort, where a gritty person is likely to expend tenacious persistence through hard circumstances.

The original Grit Scale (Grit-O) was developed as a measure for quantifying grit [3]. Grit-O is a 12-item self-report questionnaire with 6 items in each domain of grit. Both domains of grit predicted outcomes better together than separately. The Short Grit Scale (Grit-S) [4] was later developed to improve the scale's properties, with all the eight items deriving from the Grit-O. There are four items in each of the domain respectively. The Grit-S showed acceptable internal consistency range,  $\alpha=.73$  to  $.83$  and maintained the original two-factor structure model, which remained positively related. To date, Grit-S is the more prevalent instrument used in research related to grit. Existing trans-adapted versions of Grit-S include Korean [17], Japanese [18], Chinese [19], Turkish [20], Polish [21], German (BISS-8) [22] and US-Spanish [23].

The meta-analysis on grit studies [14] revealed that Duckworth's factor structure model was not seen in some studies, where the two domains of grit had better predictive influence on psychological outcomes separately than together [11,24].

Datu and colleagues argued that this is due to grit not being universal in its manifestation, which varies according to cultural contexts [11,24,25]. From Markus and Kitayama's self-construal theory [26], individualist cultures (e.g. United States, United Kingdom) are said to have independent self-views, where attainment of own preferences are highlighted. In collectivist cultures (e.g. Malaysia, Philippines), interdependent self-views are seen, where harmonious relationships and preferences of others are emphasized. In this

light, the ability to adapt goals and behaviours based on external and contextual factors in order to maintain these preferences is more valued by collectivists, rather than preserving them.

Grit manifestation has already been shown to depart from the originally defined structure in collectivist settings [11,17,25]. In particular, a qualitative study [25] was carried out in the Philippines as an emic approach to discern how grit can be culturally sensitive in collectivist cultures. This was in lieu of the findings in an earlier validation study [24], where perseverance of effort was the more salient predictor of psychological outcomes, and not consistency of interests. An additional theme of adaptability to situations was found in the qualitative study. The Triarchic Model of Grit Scale (TMGS) [11], a 10-item self-report questionnaire, with three adapted items from the Grit-S each in the consistency of interests and perseverance of effort domains was later developed to incorporate this. The remaining four items capture the adaptability to situations domain, which embodies the interdependent self-construal [26] of collectivistic Philippines that value flexibility over maintenance of set goals (i.e. consistency of interests).

Thereby, to assume universal manifestation of grit could be misleading, thus hampering efforts for its cultivation. The effort to cultivate grit in Malaysia can begin with the availability of a suitable instrument to quantify it in a manner befitting the Malaysian context. At present, there are no culturally sensitive instrument for grit in the Malay language, and the practice is to administer the Western-derived grit scales for studies in Malaysia [27-29].

## **Research Objectives**

1. To examine the homogeneity, stability, and equivalence reliabilities of the Malay Grit-S to the original English Grit-S.
2. To examine the concurrent, convergent, and divergent validities of the Malay Grit-S.
3. To examine the factor structure of the Malay Grit-S.

## **Research Questions**

1. Will the Malay Grit-S demonstrate appropriate internal, test-retest, and equivalence reliabilities with the original English Grit-S?
2. Will the Malay Grit-S demonstrate appropriate concurrent, convergent, and divergent validities?
3. What is the factor structure of the Malay Grit-S?

## **Methods and Procedures**

### ***Study Design***

A cross-sectional survey-based design will be employed, as the Grit-S and its criterion measures are paper-and-pencil-based questionnaires.

### ***Measures***

The measures that will be used for construct validation and criterion related validations of the Malay Grit-S are:

### ***Sociodemographic profile***

The sociodemographic profile consists of participants' identification details, including gender, age, race, academic background and marital status. Information on physical and mental health status are also noted.

*Adapted Malay version of the Short Grit Scale (Malay Grit-S)*

Grit-S is an 8-item self-report questionnaire. Items are rated on a 5-point Likert scale, where 1=Not like me at all and 5=Very much like me. Items 1, 3, 5 and 6 are reverse-scored. One's level of grit is expressed as a total score divided by 8. The maximum score of this scale is 5 (extremely gritty) and the lowest score is 1 (not at all gritty). The Cronbach's  $\alpha$  ranged from .73 to .83, with  $\alpha_{\text{consistency}}=.73$  to .79 and  $\alpha_{\text{perseverance}}=.60$  to .78 [4].

*Adapted Malay version of Triarchic Model of Grit Scale (Malay TMGS)*

TMGS is a 10-item self-report questionnaire. Items are rated on a 5-point Likert scale, where 1=Not like me at all and 5=Very much like me. Items 1, 2 and 4 are reverse-scored. One's level of grit is expressed as a total score divided by 10. The maximum score of this scale is 5 (extremely gritty) and the lowest score is 1 (not at all gritty). Respective internal consistencies were  $\alpha_{\text{perseverance}}=.75$  to .84,  $\alpha_{\text{consistency}}=.60$  to .84 and  $\alpha_{\text{adaptability}}=.88$  [11].

*Adapted Malay version of Big Five Inventory, Conscientiousness items (Malay BFI Conscientiousness)*

The BFI Conscientiousness is from the Conscientiousness subscale of the five-factor model of personality in the BFI [34]. Only the items from this subscale was included so as not to be burdensome for participants to endorse. The 9 items are rated on a 5-point Likert scale, where 1=Disagree strongly and 5=Agree strongly. Items 8, 18, 23 and 43 are reverse-scored. One's level of conscientiousness is expressed as a total score out of the maximum score of 45. The internal consistency was .82 [4].

*Malay version of the General Health Questionnaire, 12 item version (GHQ-12 Malay)*

GHQ-12 [30] for measuring psychological distress is available in Malay (GHQ-12 Malay) [31]. There are four item response categories, i.e. Not at all, No more than usual, More than usual and Much more than usual for items 1, 2, 7, 10, 11 and 12. Remaining items' response categories are More than usual, No more than usual, Less than usual, Much less than usual. Scoring is by binary method, where the two least symptomatic answers are scored 0, while the two most symptomatic answers are scored 1 (i.e., 0-0-1-1). GHQ-12 yields an overall total score, with a maximum score of 12. The cut-off point to detect distress ranges from total score of 3/4 in medical students [31] to 5/6 in university students [32]. Cronbach's  $\alpha=.70$  [32] and  $\alpha=.84$  [33] was found.

## **Procedures**

### *Adaptation*

The study will begin with the adaptation of the Grit-S, TMGS and BFI Conscientiousness items from English to Malay. The items will be forward translated to Malay by bilingual experts, followed by an expert panel review; keeping to the guidelines set out by the International Test Commission [35].

### *Pre-Testing*

The agreed-upon versions of the adapted tests (i.e. Grit-S, TMGS and BFI Conscientiousness) and the GHQ-12 Malay, alongside its English counterparts will be pre-tested onto a 30 to 40 student sample, similar to the actual validation sample. This is to distinguish issues in suitability of

instructions, the language used and to gather timing specifics. A small scale reliability and validity analyses will also be gained.

### ***Validation***

Participants will be Malaysian students of the International Islamic University Malaysia (IIUM) Gombak campus, with the inclusion criterion of being bilingual in English and Malay. A Priori G\*power calculation yielded a minimum sample size of 84 at 0.3 moderate effect size and 80% power. Comrey noted that a sample size of 200 is reasonably good for ordinary factor-analytic work with 40 or fewer variables [36]. Additionally, Tinsley and Tinsley suggested 5 to 10 participants per variable, where the data for the items and scale parameters stabilize for samples 300 and above [37]. Considering the response rate of 85% based on the previous validation study conducted in Malaysia on the similar sample [38], and to cater for attrition, outliers, and missing values, 350 participants will be targeted.

After revisions of the tests from the pre-testing stage, the agreed-upon versions will be administered to the 350-sample for validation purposes. Thirty-five from the sample will be re-approached after two weeks for test-retest reliability analysis. The administration of the tests will be via Google Form to students of different faculties to ensure representation.

### ***Statistical Analyses***

Data from the pre-testing stage as well as the validation stage will be analysed with the IBM SPSS software for descriptive and inferential statistics. Prior to analysis, data will be cleaned and screened for outliers and missing values by using descriptive statistics. Internal-consistency reliability will

be established through Cronbach's  $\alpha$ . Homogeneity, stability, and equivalence reliabilities as well as concurrent, convergent and divergent validities will be established via Pearson's correlation. Factorial structure will be examined through Exploratory Factor Analysis (EFA).

### ***Ethical Considerations***

Permission to use the tests will be sought from its authors, while ethical approval will be obtained from IIUM Research Ethics Committee (IREC). Participants will be briefed that partaking is voluntary and they may withdraw from the study at their discretion. Prior to that, upon explanation of the study's purpose, informed consent will be acquired. Care will be taken to preserve participants' anonymity and confidentiality.

### ***Expected Outcomes***

1. Malay Grit-S will demonstrate evidence of homogeneity and stability, with high equivalence to the original English Grit-S.
2. Malay Grit-S will demonstrate concurrent evidence with BFI Conscientiousness, converge with TMGS and diverge from psychological distress as measured in the GHQ-12 Malay.
3. Malay Grit-S will demonstrate a probable two-factor structure of grit, providing evidence of how grit is understood in Malaysia.

### ***Significance of the Study***

The proposed study aims to add to the body of knowledge on grit, specifically in understanding how it may be manifested under different cultural settings. Researchers have argued that a culturally adapted test is

the most effective way to produce an equivalent test in a second language [38].

Adaptation of the Grit-S into the Malay language and validating it in the Malaysian context will avail a suitable instrument for quantifying grit to be used in future studies. Future research related to grit in Malaysia may peruse the Malay Grit-S with confidence as it will be a culturally sensitive, adapted and validated instrument for grit.

Henceforth, by establishing the equivalence reliability between Grit-S and Malay Grit-S, the more optimal version can be discerned. High equivalence will denote the fitness of using the original Grit-S in Malaysia for those comfortable in being tested in English, while a low equivalence further points to how grit is understood in the local context and addressing the imperative claim of having an adapted instrument.

In undertaking the study, the audience participation to be tested for grit will be widened, as the study avails a fitting grit instrument that is adapted to Malay and takes into account the cultural nuances that may exist. The validated Grit-S versions may have practical implications in academic and education settings for educational psychologists, school counsellors, teachers and parents. Effort can be conceptualized and steered by educational psychologists to nurture and increase the level of grit in students. Following which, teachers, school counsellors and parents may encourage students who are not traditionally intelligent but have high grit scores and show tenaciousness and perseverance in their tasks, to undertake deliberate practice and to have a growth mindset as a path to favourable academic outcomes [2].

Consequently, the study hopes to aspire a complementary paradigm shift of the current clinical psychology practice, where on top of addressing the clinical deficiencies in an individual, the strengths and virtues are also highlighted and enhanced as a more holistic approach to therapy.

## References

- [1] Seligman MEP. The President's address. *Am Psychol.* 1999;54(8):537-68.
- [2] Duckworth A. *Grit: the power of passion and perseverance.* New York: Scribner/Simon & Schuster; 2016.
- [3] Duckworth AL, Peterson C, Matthews MD, Kelly DR. Grit: perseverance and passion for long-term goals. *J Pers Soc Psychol.* 2007;92(6):1087-101.
- [4] Duckworth AL, Quinn PD. Development and validation of the Short Grit Scale (Grit-S). *J Pers Assess.* 2009;91:166-74.
- [5] Duckworth AL, Seligman MEP. Self-discipline outdoes IQ in predicting academic performance in adolescents. *Psychol Sci.* 2005;16(12):939-44.
- [6] Eskreis-Winkler L, Duckworth AL, Shulman E, Beal S. The grit effect: predicting retention in the military, the workplace, school and marriage. *Front Psychol.* 2014;5(36):1-12.
- [7] Lovering ME, Heaton KJ, Banderet LE, Neises K, Andrews J, Cohen BS. Psychological and physical characteristics of U.S. marine

- recruits. *Mil Psychol.* 2015;27:261-75.
- [8] MacCann C, Roberts RD. Do time management, grit and self-control relate to academic achievement independently of conscientiousness? In: Hicks R, editor. *Personality and individual differences: current directions*. Queensland, Australia: Australian Academic Press; 2010. P. 79-90.
- [9] Bowman NA, Hill PL, Denson N, Bronkema R. Keep on truckin' or stay the course? Exploring grit dimensions as differential predictors of educational achievement, satisfaction and intentions. *Soc Psychol Pers Sci.* 2015;6:639-54.
- [10] Samson AC, Proyer RT, Ceschi G, Pedrini PP, Ruch W. The fear of being laughed at in Switzerland: regional differences and the role of positive psychology. *Swiss J Psychol.* 2011;70:53-62.
- [11] Datu JAD, Yuen M, Chen G. Development and validation of the Triarchic Model of Grit Scale (TMGS): evidence from Filipino undergraduate students. *Pers Individ Dif.* 2017;114:198-205.
- [12] Jin B, Kim J. Grit, basic needs satisfaction and subjective well-being. *J Individ Differ.* 2017;38:29-35.
- [13] Blalock DV, Young KC, Kleiman EM. Stability amidst turmoil: grit buffers the effects of negative life events on suicide ideation. *Psychiatry Res.* 2015;228:781-4.
- [14] Crede, M, Tynan MC, Harms PD. Much ado about grit: a meta-analytic synthesis of the grit literature. *J Pers Soc Psychol.* 2016;113(3):492-511.
- [15] Kamenetz A. MacArthur 'genius' Angela Duckworth responds to a new critique of grit. 2016 May 25 [cited 2019 May 24]. In: NPR Education [Internet]. 2 p. Available from <https://www.npr.org/sections/ed/2016/05/25/479172868/angela-duckworth-responds-to-a-new-critique-of-grit>
- [16] McCrae RR, Costa PT Jr. Validation of the five-factor model of personality across instruments and observers. *J Pers Soc Psychol.* 1987;52:81-90.
- [17] Kim YJ, Lee CS. Effects of grit on the successful aging of the elderly in Korea. *Indian J Psy Technol.* 2015;8(7):373-8.
- [18] Nishikawa K, Okugami S, Amemiya T. Development of the Japanese Short Grit Scale (Grit-S). *Jpn J Pers.* 2015;24(2):167-9. Japanese.
- [19] Li J, Zhao Y, Kong F, Du S, Yang S, Wang S. Psychometric assessment of the short grit scale among Chinese adolescents. *J Psychoeduc Assess.* 2016;36(3):291-6.
- [20] Haktanir A, Lenz AS, Can N, Watson JC. Development and evaluation of Turkish language versions of three positive psychology assessments. *Int J Adv Couns.* 2016;38(4):286-97.

- [21] Wyszzyńska P, Ponikiewska K, Karaś, D, Najderska M, Rogoza R. Psychometric properties of the Polish version of the Short Grit Scale. *Pol Psychol Bull.* 2017;48(2):229-36.
- [22] Schmidt FTC, Fleckenstein J, Retelsdorf J, Eskreis-Winkler L, Möller J. Measuring grit: a German validation and a domain-specific approach to grit. *Eur J Psychol Assess.* 2017. In print.
- [23] Karaman MA, Vela JC, Aguilar AA, Saldana K, Montenegro MC. Psychometric properties of U.S.-Spanish versions of the grit and resilience scales with a Latinx population. *Int J Adv Couns.* 2019;41(1):125-36.
- [24] Datu JAD, Valdez JPM, King RB. Perseverance counts but consistency does not! Validating the Short Grit Scale in a collectivist setting. *Curr Psychol.* 2015;35(1),121-30.
- [25] Datu JAD, Yuen M, Chen G. Datu, J. A. D., Yuen, M., & Chen, G. Exploring determination for long-term goals in a collectivist context: A qualitative study. *Curr Psychol.* 2016;37(1),263-71.
- [26] Markus H, Kitayama S. Culture and the self: implications for cognition, emotion, and motivation. *Psychol Rev.* 1991;98:224-53.
- [27] Abdul Aziz D, Ibrahim MA, Jaafar Sidik MH, Tajuddin M. Accounting students' perception and their intention to become professionally qualified accountants. In: Jaafar MY, Abdullah Sani A, Muhammad A, editors. *ICGA 2016: Proceeding of the 4<sup>th</sup> International Conference on Governance and Accountability*; 2016 Sept 25-27; Malacca, Malaysia. NY: Curran Associates; 2017. p. 93-109.
- [28] Ramasamy S, Yu SM. Mediating effect of utilisation of emotion on the relationship between grit and psychological contract. *JPM.* 2017;31(3):64-83.
- [29] Siah PC, Ong PJM, Ngiam SJ, Tan JTA. The mediating effect of grit on sleep quality and academic performance among undergraduates in Malaysia. *J Inst Res South East Asia.* 2018;16(1):112-25.
- [30] Goldberg D, Williams P. *A user's guide to the General Health Questionnaire.* Windsor, UK: NFER-Nelson; 1988.
- [31] Yusoff MSB, Abdul Rahim AF, Yaacob MJ. The sensitivity, specificity and reliability of the Malay version 12-items General Health Questionnaire (GHQ-12) in detecting distressed medical students. *ASEAN J Psychiatr.* 2009;11(1):36-43.
- [32] Zulkefly NS, Baharudin R. Using the 12-item General Health Questionnaire (GHQ-12) to assess the psychological health of Malaysian college students. *Glob J Health Sci.* 2010;2(1):73-80.
- [33] Ibrahim N, Jamil Osman Z, Noor Jan KON, Ismail SIF, Phang CK, Mukhtar F, Mohd Sidik S. Reliability and Factor structure of the General Health Questionnaire-

12 among university students. Malaysian J Med Health Sci. 2014;10(2):53-60.

- [34] John OP, Srivastava S. The Big Five trait taxonomy: history, measurement, and theoretical perspectives. In: Pervin LA, John OP, editors. Handbook of personality: theory and research. NY: Guilford Press. 1999. p. 102-38.
- [35] International Test Commission [Internet]. The ITC Guidelines for Translating and Adapting Tests (Second edition). [updated 2016; cited 2019 May 24]. Available from [www.InTestCom.org](http://www.InTestCom.org).
- [36] Comrey AL. Factor-analytic methods of scale development in personality and clinical psychology.

J Consult Clin Psychol. 1998;56(5):754-61.

- [37] Tinsley HE, Tinsley DJ. Uses of factor analysis in counseling psychology research. J Couns Psychol. 1987;34(4):414-24.
- [38] J. H. Abdul Khaiyom, F. Mukhtar, N. Ibrahim, S. Mohd. Sidik, and T. P. S. Oei, Psychometric properties of the Catastrophic Cognitions Questionnaire-Modified (CCQ-Modified) among community samples in Malaysia. Stress & Heal. 2016, 32(5), 543-550.
- [39] Hambleton RK, Patsula L. Increasing the validity of adapted tests: myths to be avoided and guidelines for improving test adaptation practices. Journal of Applied Testing Technology. 1999;1(1):1-3.

### **Corresponding Author**

Hezne Ezaty Abu Hasan  
Department of Psychology, I  
nternational Islamic University Malaysia,  
Jalan Gombak, 53100 Kuala Lumpur,  
Malaysia  
**Tel:** +6012-6916977

**Email:** [heznee@hotmail.com](mailto:heznee@hotmail.com)