Lee G. Baraquia
Philippines

Development of a Teacher Grit Scale (TGS): Predicting the Performance of Educators in the Philippines

Abstract

The study aims to develop and validate a Teacher Grit Scale and determine its predictive validity for performance. This quantitative research utilized exploratory, confirmatory, and regression analyses based on data from 1425 teachers of the Department of Education, Philippines. Exploratory factor analysis established the factorial validity of a 2-factor structure as compared to 3-factor and 4-factor models. Confirmatory factor analyses from Region IX and Region X of the Department of Education reveal strong cross-validation between the 2-factor models and the data using goodness-of-fit indices. These outcomes show that the factors describing grit are: (1) Perseverance in Teaching and (2) Passion and Purpose in Teaching. Grit relates significantly to teacher performance. However, only the first dimension of grit - perseverance in teaching, established predictive validity with performance.

Key words: *factor analysis, performance, teachers' grit*

Introduction

The constant search to identify predictors of educator performance is illustrated in the exploration of the grit of teachers in their profession. Grit, tagged as an essential component of success, is perceived as the combination of the perseverance of effort and consistency of interest over more extended time (Duckworth, Peterson, Matthews, & Kelly, 2007). It encompasses perseverance and passion to

follow long-term goals, despite difficulty, disappointment, or stagnation (Duckworth, 2016). Grit is a crucial tool to overpower the challenges that teachers encounter in their workplace. Duckworth and Quinn (2009) postulated that grit could help a person succeed despite challenging circumstances in life, especially those situations that entail an uphill struggle. Thus, it is commanding to study the constructs describing teacher grit and its predictive relationship with teaching performance.

This present study hypothesized that teachers with a high level of grit could exhibit outstanding performance. On the other hand, teachers who yield easily to the challenges of the teaching profession tend to demonstrate inadequate or unsatisfactory performance. Gritty individuals pursue long-standing goals and ambitions by not relinquishing, regardless of challenges and setbacks (Duckworth et al., 2007). Gritty teachers show the ability to consistently focus on their essential spheres of interest. Correspondingly, they also persevere amidst heavy workloads and excessive teaching demands on a long-term basis.

Indeed, the manifestation of "grit" within a person is an enormously advantageous attribute. The essence of "grit" is associated to several factors relating to success and personal achievement. Conversely, reservations have surfaced concerning the dependability of employing grit as a measure or predictor of success. Research suggests that designing interventions that focus on fostering grit will not have the desired effect on success (Credé, Tynan, & Harms, 2017). Thus, determining grit as a reliable and acceptable predictor of teacher performance is vital considering the reservations about its construct validity.

The Philippine Professional Standards for Teachers (PPST), through DepEd Order No. 42, S. 2017, stipulated that PPST serve as a foundation for teachers, involving all training and development programs. The new DepEd-PPST-RPMS Performance Assessment system is now being implemented in all public schools in the Philippines to support continuing professional development. It provides the standards and indicators used in appraising teachers' performance. Understanding the PPST is crucial for teachers to grow and flourish in their profession.

Along with this proposition, the researcher decided to conduct a study that will create a tool to measure the grit level of teachers in the Department of Education. This study employs exploratory factor analysis and confirmatory factor analysis to verify the constructs of the Teachers' Grit Scale (TGS). Factor analysis is useful in exploring a phenomenon of interest and in developing, testing, and verifying a new research instrument. Confirmatory Factor Analysis (CFA) is used in this study to provide reliable validation and verification of the Teacher' Grit Scale (TGS).

The grit scale aims to help improve teachers' views and attitudes, and possibly, overall teaching performance. The researcher also believed that when teachers know their present grit level and its influences, they may be able to exert more effort to improve their performance. Based on previous reports, analysis of empirical findings, and the research need for specificity, constructs of teachers' grit can still be explored using exploratory and confirmatory factor analyses. Due to their possible role in affecting teachers' overall performance in the teaching-learning process, it is high time to examine constructs of teacher grit in association with performance evaluation under the new DepEd-PPST-RPMS Performance Assessment system. For this reason, the researcher assumed the necessity to construct a teacher version of a questionnaire designed to measure grit and probe its psychometric properties.

Problem of Research

This study's primary goal is to develop, validate, and verify the constructs of a Teacher Grit Scale (TGS) to describe the grit of public school teachers. In addition, this research examines the predictive utility of the factors verified in the Teachers' Grit Scale for teacher performance.

Research Focus

Research studies have implicated grit as a predictor of success in a variety of activities, both cognitive and non-cognitive in dimension (Strayhorn, 2014; Abu-hassàn & Bates, 2015; Guerrero, Dudovitz, Chung, Dosanjh, & Wong, 2016; Hodge, Wright, & Bennett, 2018). Thus, it should play a role in teaching performance as well. Exploring teachers' grit offers our educators the chance to achieve their life-long goals. In general, a more useful comprehension of the influence of grit on the task of educating may help inform educators in preparing and carrying out their duties and responsibilities in school. A higher level of grit allows teachers to thrive not only daily, but also on a long-term basis.

Grit is a blend of passion for learning, perseverance in a task, and purposeful activities (Rogers, 2017). Roberts, Lujeuz, Krueger, Richards, and Hill (2014) explained it as diligence and conscientiousness. Further, Duckworth et al. (2007) identified two dimensions of grit, particularly, passion and perseverance. Werner (1996) suggested the earlier-established concept of resilience as one of its factors. Given the extent of the dimensions of grit, it is meaningful to consider grit measures through the perspectives of teachers.

Previous research has specified a high correlation of grit with self-control (Duckworth & Gross, 2014). Lucas, Gratch, Cheng, & Marsella, (2015) pronounced

that the relationship between grit and self-control is highly evident, as well as grit and perseverance in challenging tasks. Individuals with a greater level of self-control may possess the capability to regulate emotion and withstand temptation, but this does not with certainty signify that they are persistent in attaining a particular goal in life. This description is inconsistent, as human beings engage and perform differently (Duckworth & Gross, 2014).

Methodology of Research

General Background of Research

This study's primary goal is to develop, validate, and verify the constructs of a Teacher Grit Scale (TGS) to describe the grit of public school teachers. In addition, this research examines the predictive utility of the factors verified in the Teachers' Grit Scale for teacher performance.

Sample of Research

The participants of the study were the one-thousand four hundred and twenty-five (1425) teachers from Region IX- Zamboanga Peninsula and Region X- Northern Mindanao, Department of Education, Philippines. From the sample of public school teachers, 120 teachers participated in the pilot testing, and 300 teachers participated in the exploratory phase. In the confirmatory phase, 502 teachers from Region IX and 503 teachers from Region X contributed to the study. Recruitment of the participants was voluntary with informed consent as proof of their voluntary participation.

Instrument and Procedures

For the proposed Teacher Grit Scale, the construction of indicators utilized thematic data analysis on teachers' coping strategies from the interview. These strategies highlighted how they handle, overcome, or deal with challenges and demands in their teaching profession. Psychometric properties of the instrument ascertained its validity and reliability. For the final phase of this study, the researcher collected data on teachers' grit along with the teachers' performance based on the 2019 Individual Performance Commitment Review Form (IPCRF) summary sheet under the Results-based Performance Management System - Philippine Professional Standards for Teachers (RPMS-PPST).

Data Analysis

The preliminary phase of this study employed content validity and reliability analysis. Seven experts on the research topic examined the 25-item pool of proposed indicators for the Teacher Grit Scale (TGS). The content validators reviewed the constructed items. They suggested revisions and rejections on some constructs. They also accepted some items, resulting in a new 21-item pool of indicators. During the pilot testing, 120 teachers participated in answering the Teacher Grit Scale. The reliability analysis of the instrument was interpreted as acceptable internal consistency (0.91 Cronbach's alpha).

The data gathered on teacher grit was subjected to exploratory factor analysis (EFA) to develop, validate, and form the constructs of the proposed Teacher Grit Scale (TGS). Confirmatory Factor Analysis (CFA) was used in this study to provide reliable validation of the Teacher Grit Scale (TGS). The CFA model is intended to specify the number of (latent) factors or the pattern of loadings on the factors. These factor loadings identify the pattern of unique variances specific to each observation.

To identify the level of teachers' grit and performance, mean and standard deviation summarized the data set. Correlation analysis and multiple regression analysis explore the collected data and uncover any predictive utility of the constructs and factors of teachers' grit for performance.

Results of Research

Teacher Grit Scale (TGS): Exploratory Factor Analysis (Phase 1)

Sampling Adequacy and Test of Sphericity. This analysis ran a series of tests to establish that the data set on teacher grit is suitable for exploratory factor analysis. First, descriptive indices showed the normality of distribution of the data set. Second, the sample size fits the criterion 10:1 with an ideal ratio of the sample (300 observations) to the number of items (21 items) included in the EFA (Osborne, 2014). Third, all items showed an inter-item correlation of at least 0.3, except Item 12, which had only 0.239. Fourth, the Kaiser-Meyer-Olkin (KMO) disclosed a value of 0.916, which is a strong measure of sampling adequacy (MSA). KMO values of 0.8 and above are very suitable for factor analysis, yielding consistent factors with patterned correlations (Field, 2009). And fifth, the Bartlett's test of sphericity confirmed statistical significance *($\chi2(210) = 1979.572; p < .001$)*. This result indicates that there are some relationships among the 21 items included in this analysis and supports the factorability of the correlation matrix.

Number of Factors. The exploratory factor analysis employed the principal component extraction method and Varimax rotation to explore the factor structure of the Teacher Grit Scale. The 2-factor solution proved to be appropriate, with eight items converging on Factor 1 and 6 items converging on Factor 2. Three items *(Item 2, Item 4, and Item 12)* registered a factor loading less than .40, and were discarded from the analysis. A factor with five or more strongly loading items *(≥ 0.50)* indicates a compact model (Costello & Osborne, 2005). Using this recommendation, four items *(Item 8, Item 13, Item 15, and Item 19)* had component loading less than 0.50, and thus, were removed from the analysis. Additionally, this 2-factor model showed no cross-loading. These tests signified valid and reliable parameters of the 2-factor model, retaining 14 items out of the original 21 items in the Teacher Grit measure.

The Factors of Teachers' Grit Scale (TGS). Factor loadings indicate the strength of association between the variables and the factors. This examination retained only those items with a factor loading of at least 0.50 on their component on the Teachers' Grit Scale (TGS). The factor loading of 14 items ranging from 0.538–0.798 quantified that all constructs are strongly correlated to their factors. The examination of the constructs that loaded significantly on their corresponding factor highlights the key concepts and the emerging themes that they signify. The dimension name anchored on the items that loaded on the respective factors.

Factor 1 comprised eight (8) items, suggesting that teacher grit highlights the way educators persist amidst challenges in their teaching profession. These constructs of grit describe how teachers manage difficulties in teaching and overcome work demands. Thus, the central theme that emerged on the first factor is *Perseverance in Teaching*. Factor 2 encompassed three items denoting strong feelings and enthusiasm of the teachers as they perform their duties and responsibilities in the teaching profession. The other three items indicated teachers' convictions and a sense of purpose in serving the learners. Thus, *Passion and Purpose in Teaching* labeled factor 2.

Factor 1 – Perseverance in Teaching. As one of the components of teacher grit, perseverance in teaching emphasizes the unrelenting effort, energy, and enthusiasm of teachers despite the difficulties encountered in the teaching profession. This component of grit designates teachers' determination, mental toughness, and composure to withstand the demands of their work. Gritty teachers approach teaching challenges by giving their best and by maintaining the right mind-set. Grit is a fundamental tool to override the difficulties that teachers encounter in their work.

Factor 2 – Passion and Purpose in Teaching. Passion and purpose in teaching as a dimension means being able to manifest excitement and enjoyment in working with the learners. This factor of teacher grit embraces contentment in the teaching profession and the sense of purpose in serving learners for a lifetime. Gritty teachers accomplish their goals with great passion and determination. Despite frustrations and constant pressures, they opt to stay in the teaching profession.

Reliability Analysis and Descriptive Indices. The Teacher Grit Scale comprised 14 items measuring two dimensions of grit, precisely Perseverance in Teaching and Passion and Purpose in Teaching. The measure of internal consistency reliability of each factor was found to be highly acceptable and reliable. Both Factor 1 and Factor 2 obtained a Cronbach's alpha coefficient of 0.82, indicating the reliability of the factors as strong. These results mean that the constructs under Factor 1 and Factor 2 strongly correlate with each other. Teachers' perseverance in teaching appeared to be a high level of grit *(M = 3.43; SD = 0.08)*. Similarly, teachers' passion and purpose in teaching signified a remarkable degree of grit *(M = 3.56; SD = 0.08)*.

Teacher Grit Scale (TGS): Confirmatory Factor Analysis (Phase 2)

Internal Consistency Reliability. The Confirmatory Factor Analysis established the emergence of two factors. Cross-validation using CFA was conducted separately for Region IX and Region X. This confirmation from the two regions aimed to examine the generalizability of the two dimensions of grit in the Department of Education, Philippines. The separate validation thoroughly considered the nature and nuances of grit, which might be sensitive to the context of the teachers.

For Region IX, Factor 1: Perseverance in Teaching accumulated a highly consistent alpha value. In the data analysis, the inter-item correlation indicated coefficients ranging from .45 - .57. These observations showed the inter-correlation of the items that are adequate and consistent with each other. Factor 2: Passion and Purpose in Teaching had a strongly reliable Cronbach's alpha. The inter-item correlation specified coefficients ranging from .40 - .56. These values substantiated the inter-correlation of items that are consistent with each other.

For Region X, Factor 1: Perseverance in Teaching accumulated a highly consistent alpha value. The correlation coefficient of items ranging from .47 - .68 also indicated its reliability. These observations showed the inter-correlation of items that are consistent with each other. Factor 2: Passion and Purpose in Teaching similarly had a strongly reliable Cronbach's alpha and showed the inter-correlation of items that are consistent with each other.

The significant correlation between the two factors indicated a very strong positive linear relationship. This effect means that the inter-correlations between Perseverance in Teaching (Factor 1) and Passion and Purpose in Teaching (Factor 2) direct the convergence of the factors in a positive direction. The degree of dependence between the two factors indicates that as Perseverance in Teaching increases, the Passion and Purpose in Teaching also increases.

Model Fit Statistics. Multiple indices such as chi-square (χ2), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Goodness of Fit Index (GFI), Root mean square error of approximation (RMSEA), and Standardized root mean square residual (SRMR) tested and verified the fit of the data. The results of the confirmatory factor analysis from Region IX revealed an adequate fit of the two-factor model of the Teacher Grit Scale *(χ2/df = 2.29; p< 0.001; CFI = 0.94; TLI = 0.93; GFI = 0.95, RMSEA = 0.05; SRMR = 0.04)*.

As a criterion of model fit, the proportion of chi-square to degrees of freedom (χ2/df) ought to be 3.0 or less, and chi-square (χ2) should not be significant (Hoe, 2008). However, the value of the chi-square statistic is entirely dependent on the sample size. Considerable significance is obtained with large sample size, even though there are only minor discrepancies between the data set and the model. Conversely, a small sample size generates insignificant chi-square (χ2) despite the existence of substantial disagreement concerning the model and data obtained (Ganotice, 2010). The Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Goodness of Fit Index (GFI) should not be lower than .90 (Brown & Cudeck, 1993). RMSEA values of less than .06 designate a good fit, and values as high as .08 signify a reasonable fit. The Standardized root mean square residual (SRMR), which is less than 0.06, reveals a good fit (Hu & Bentler, 1999).

Moreover, the after effect of the confirmatory factor analysis designated a satisfactory fit of the two-factor model from Region X, considering the standard criteria of fit indices *(χ2/df = 2.67; p< 0.001; CFI = 0.95; TLI = 0.94; GFI = 0.95; RMSEA = 0.06; SRMR = 0.04)*. Although a value of .90 for CFI, TLI, and GFI functioned as a rule-of-thumb lower limit for acceptable fit, a value of at least .93 indicates well-fitting models (Byrne, 1994). The root mean square error of approximation (RMSEA) should not be higher than .08 (Hu & Bentler, 1999).

The Final Scale. After thorough exploration and validation of the different constructs and models describing the dimension of grit, this study synthesized the Teacher Grit Scale. The scale contains two factors similar to the study of Angela Duckworth (2016) on passion and perseverance as a two-factor model describing grit. Factor 1 comprised eight (8) items suggesting that teachers' grit highlights the way educators persist amidst challenges in their teaching profession.

These constructs of grit describe how teachers manage difficulties in teaching and overcome work demands. Thus, the central theme that emerged on the first factor is *Perseverance in Teaching*. Factor 2 encompassed three items denoting strong feelings and enthusiasm of the teachers as they perform their duties and responsibilities in the teaching profession. The other three constructs indicated teachers' convictions and a sense of purpose in serving the learners. Thus, *Passion and Purpose in Teaching* described factor 2.

Table 1. Teachers' Grit Scale (TGS): The Final Scale.

Factors / Indicators
Perseverance in Teaching
1.   I deal with teaching challenges by looking for different solutions.
2.   I become more mature by overcoming difficulties in teaching.
3.   I handle setbacks in teaching with grace and dignity as I consider them part of the job.
4.   I am determined to withstand the work demands of the teaching profession.
5.   I set a standard in teaching by being resourceful and creative.
6.   I give my best in teaching.
7.   I look at problems in teaching as opportunities to grow.
8.   I focus on my job with a positive attitude.
Passion and Purpose in Teaching
9.   I want to be of service to the learners for a lifetime.
10.   I choose to be in the teaching profession, and I opt to stay with it.
11.   I find continuous enjoyment in working with the learners.
12.   I have a sense of contentment in my teaching profession.
13.   I manifest excitement in my teaching profession for a long time.
14.   I have a sense of purpose in teaching.

The correlation test determined the association of teachers' performance with perseverance in teaching and passion and purpose in teaching. The results showed that the perseverance in teaching has a weak but significant correlation with performance $(r = .321; p < .001)$. Further, passion and purpose in teaching showed a weak and significant association with performance $(r = .196; p < .001)$. Using the stepwise method of regression analysis, Model 1 reveals that only perseverance in teaching can significantly predict teachers' performance $(R2 = .103; F = 40.528; p < .001)$. Though performance is dependent to some extent on passion and purpose in teaching, this factor of teacher grit does not exhibit predictive utility on RPMS-PPST performance of the teachers.

The predictive validity of the regression model calculated the contribution of grit, in terms of perseverance in teaching, to performance. The findings verified that only the first factor of teacher grit, namely perseverance in teaching, significantly predicts performance. The unstandardized beta coefficients contain positive measurements, indicating a direct relationship with the dependent variable.

Discussion

The definitive goal of the study is to develop a scale that would measure teacher grit and explore its predictive validity for performance. The grit measure delivered substantial evidence of reliability and validity. The exploratory factor analysis established the factorial validity of a 2-factor structure. The results of CFA conducted on the Teacher Grit Scale (TGS) reveal a good fit between the models and the data using goodness-of-fit indices. Hence, the CFA approach employed in this study provided strong cross-validation. This validation shows that the factors that compose grit according to the perceptions of teachers from Region IX and Region X of the Department of Education are: *Perseverance in Teaching and Passion and Purpose in Teaching*.

Grit operates through the dynamism of passion and perseverance (Duckworth et al., 2007). Grit encompasses persistence of effort in following long-term goals despite difficulty, disappointment, or stagnation (Duckworth, 2016). Grit is the intermingling of perseverance on a task, passion for learning, and purposeful activities (Rogers, 2017). Gritty individuals pursue long-standing goals and ambitions by not relinquishing regardless of challenges and setbacks (Duckworth et al., 2007). Grit is defined as a voluntary continuation of goal-directed action, regardless of discouragements or difficulties (Park, Peterson, & Seligman, 2004). Hence, gritty teachers show the ability to persevere amidst heavy workloads and excessive teaching demands on a long-term basis.

Aside from perseverance of effort, passion and purpose contribute to grit. Grit encompasses selflessness and the burning desire to contribute to the well-being of others (Duckworth et al., 2007). Gritty individuals are passionate and never get tired of performing their duties and responsibilities. Grit means being able to continue a purposive action despite obstacles or despair (Park, Peterson, & Seligman, 2004).

Based on the findings, the following are the implications of the study: (a) School heads may initiate psycho-social development programs that will further strengthen teachers' grit in terms of perseverance in teaching as well as passion

and purpose in teaching. (b) Division office with the HRD may organize training for teachers in developing grit and relevant continuing personal and professional development.

Overall, a better understanding of the effect of grit on performance may help inform educators in preparing and delivering their duties and responsibilities in the teaching profession. This study recommends future research utilizing a larger sample and extending the scope of the investigation to other regions. Future studies should include the cultural and educational context of teachers to increase the generalizability of the Teacher Grit Scale.

Conclusions

The exploratory and confirmatory factor analyses confirmed the assertion that the factors of grit according to the perceptions of teachers from Region IX and Region X of the Department of Education are: *Perseverance in Teaching and Passion and Purpose in Teaching*. This two-factor structure is the best model for the scale, indicating that the two-factor measure model of grit is a good fit. The significant correlations between the two factors of teachers' grit showed that as Perseverance in Teaching increases, the Passion and Purpose in Teaching also increases. This evidence of convergent validity showed that the two factors have a commonality and that they primarily gauge teachers' grit. This analysis confirmed the assumption that grit relates significantly to teachers' performance. However, only the first dimension of grit – perseverance in teaching, established predictive validity with performance. In closing, exploring the influence of grit on teachers' performance may help inform the stakeholders in their quest to maximize competencies and realize the full potential of educators.

References

Abuhassàn, A., & Bates, T.C. (2015). Grit. *Journal of Individual Differences*. 36(4), 205–214.

Brown, M., & Cudeck, R. (1993). EQS structural equations program manual. *Multivariate Software Inc., Los Angeles*. Retrieved from http://bit.ly/2TPI1zx.

Byrne, B.M. (1994). *Structural equation modeling with EQS and EQS/Windows: Basic concepts, applications, and programming*. London: Sage. Retrieved from http://bit.ly/3d92W8k.

Costello, A.B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four

recommendations for getting the most from your analysis. *Practical assessment, research, and evaluation, 10*(1), article 7. Retrieved from http://bit.ly/2WhbQKW.

Credé, M., Tynan, M.C., & Harms, P.D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and social Psychology, 113*(3), 492.

Duckworth, A. (2016). *Grit: The power of passion and perseverance* (Vol. 234). New York, NY: Scribner.

Duckworth, A., & Gross, J.J. (2014). Self-control and grit: Related but separable determinants of success. *Current directions in psychological science, 23*(5), 319–325.

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: perseverance and passion for long-term goals. *Journal of personality and social psychology, 92*(6), 1087–1101.

Duckworth, A.L., & Quinn, P.D. (2009). Development and validation of the Short Grit Scale (GRIT–S). *Journal of personality assessment, 91*(2), 166–174.

Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd Edn. London: Sage

Ganotice, F.A. (2010). A confirmatory factor analysis of scores on Inventory of School Motivation (ISM), Sense of Self Scale, and Facilitating Conditions Questionnaire (FCQ): A study using a Philippine sample. *Educational Measurement and Evaluation Review, 1*(1), 59–77.

Guerrero, L.R., Dudovitz, R., Chung, P.J., Dosanjh, K.K., & Wong, M.D. (2016). Grit: a potential protective factor against substance use and other risk behaviors among Latino adolescents. *Academic pediatrics, 16*(3), 275–281.

Hill, P.L., Burrow, A.L., & Bronk, K.C. (2016). Persevering with positivity and purpose: An examination of purpose commitment and positive affect as predictors of grit. *Journal of Happiness Studies, 17*(1), 257–269.

Hodge, B., Wright, B., & Bennett, P. (2018). The role of grit in determining engagement and academic outcomes for university students. *Research in Higher Education, 59*(4), 448–460.

Hoe, S.L. (2008). Issues and procedures in adopting structural equation modeling technique. *Journal of applied quantitative methods, 3*(1), 76–83.

Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1–55.

Lucas, G.M., Gratch, J., Cheng, L., & Marsella, S. (2015). When the going gets tough: Grit predicts costly perseverance. *Journal of Research in Personality, 59*, 15–22.

Osborne, J.W. (2014). *Best practices in exploratory factor analysis*. CreateSpace Independent Publishing Platform. Retrieved from http://bit.ly/33iv8ks.

Osborne, J.W., Costello, A.B., & Kellow, J.T. (2008). Best practices in exploratory factor analysis. In J. Osborne (Ed.). *Best practices in quantitative methods.* (pp.86–102) Los Angeles: Sage Publications. Park, N., Peterson, C., & Seligman, M.E. (2004). Strengths of character and well-being. *Journal of social and Clinical Psychology, 23*(5), 603–619..

Roberts, B.W., Lejuez, C., Krueger, R.F., Richards, J.M., & Hill, P.L. (2014). What is conscientiousness and how can it be assessed?. *Developmental psychology, 50*(5), 1315.

Rogers, S. (2017). What's Grit Got To Do with Learning?. *AACE Review, December*. Retrieved from http://bit.ly/2Wkjimt.

Strayhorn, T.L. (2014). What role does grit play in the academic success of black male collegians at predominantly white institutions? *Journal of African American Studies, 18*(1), 1–10.

Werner, E. (1996). How children become resilient: Observations and cautions. *Resilience in Action, 1*(1), 18–28.