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The Gratitude Questionnaire and Mindful Attention Awareness Scale for use with Latina/o college students: A confirmatory factor analysis

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THE GRATITUDE QUESTIONNAIRE AND MINDFUL ATTENTION AWARENESS
SCALE FOR USE WITH LATINA/O COLLEGE STUDENTS:
A CONFIRMATORY FACTOR ANALYSIS

A Thesis

by

DION B. SMITH

Submitted to the Graduate College of
The University of Texas Rio Grande Valley
In partial fulfillment of the requirements for the degree of

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December 2016

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THE GRATITUDE QUESTIONNAIRE AND MINDFUL ATTENTION AWARENESS

SCALE FOR USE WITH LATINA/O COLLEGE STUDENTS:

A CONFIRMATORY FACTOR ANALYSIS

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December 2016

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ABSTRACT

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Interventions based on positive psychology constructs have become increasingly popular over the past two decades, necessitating validation of instruments for use with underrepresented populations (Pawelski, 2016; Vela, Lerma, & Ikonomopoulos, 2016). This study reports an evaluation of the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) and the Gratitude Questionnaire (GQ-6; McCullough, Emmons, & Tsang, 2002) for use with Latina/o college students. Sample sizes used in this study are $N = 207$ (99 women and 104 men; 4 did not identify) for the MAAS and $N = 127$ (84 women and 38 men; 5 did not identify) for the GQ-6. The process of confirmatory factor analyses of these measures for use with the stated population is discussed in the current paper, as are implications for future research and counseling services.

Keywords: mindfulness, Mindful Attention Awareness Scale, gratitude, Gratitude Questionnaire, factor analysis, Latina/o, Mexican-American

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CHAPTER I

INTRODUCTION

The Mindfulness Attention Awareness Scale (MAAS) and Gratitude Questionnaire (GQ-6) are both widely used measures of the respective positive psychology constructs addressed in this paper (Fossati, Porro, Maffei, & Borroni, 2012; Yüksel & Duran, 2012), but the current review of extant literature yielded no analyses of these measures for use with Latina/o populations in the United States. It is important to determine the degree of mindfulness and gratitude disposition of people within this large ethnic group of American citizens. The American Counseling Association (ACA, 2014) mandates that assessments be selected for clients with consideration of cultural diversity issues and psychometric validity. A confirmatory factor analysis of these measures with Latina/o subjects will pave a path forward for correct appraisal of positive psychology interventions and help to better illuminate correlations between mindfulness, gratitude, and mental health indicators for members of this culturally distinct group.

During the years between 2000 and 2010, Mexican-origin population growth represented three-quarters (11.2 million) of the overall Latina/o group expansion in the United States (U.S. Census, 2011). In 2010, more than half of the 50.5 million Latinas/os in America resided in just three states (California, Texas, and Florida) and the geographic regions bordering Mexico have numbers within this ethnic group exceeding 90 percent in many counties according to U.S.

Census (2011) data. The population expansion of Latinas/os is a nationwide reality (U.S. Census, 2011), therefore, culturally sensitive services and appropriate assessments are a growing necessity for most if not all mental health practitioners. Understanding cultural context in construct operationalization and measurement is an ongoing focus in positive psychology research, but much needed exploration remains (Pedrotti, Edwards, & Lopez, 2009). Unfortunately, Latinas/os have been identified as receiving less mental health care than majority groups and some assessments may not be sensitive to differences, resulting in lowered treatment efficacy (Piña-Watson, Ojeda, Castellon, & Dornhecker, 2013). Taking into account the size and importance of the Latina/o population, as well as the ubiquitous use of both the MAAS and GQ-6 measures, the purpose of the present study is to determine a factor structure for these assessments that is applicable to young adults of Latina/o origin. Will samples of Latina/o college students that respond to these questionnaires provide data in support of acceptable factor structure for use in this population, or will alternate models be necessary for *dispositional mindfulness* and *dispositional gratitude* construct measurement with Latina/o college students?

CHAPTER II

REVIEW OF LITERATURE

Positive Psychology

Positive psychology is a growing treatment paradigm during recent years and research based on related constructs and interventions continue to proliferate (Pawelski, 2016). Practitioners adhering to this approach focus on “human strengths, virtues, and flourishing as a correction for problem-focused narratives...” (Davis et al., 2016, p.20). There are numerous extant measures of positive psychology constructs that assess the emotional states and personal dispositions valued by its proponents. Of the intrapsychic processes commonly addressed by positive psychologists, mindfulness and gratitude in daily life are prominent among those shown to correlate positively to improved psychological functioning, emotional well-being, and life satisfaction (Brown & Ryan, 2003; Chung & Zhang, 2014; Greco, Baer, & Smith, 2011; Grecucci, et al., 2015; Klein, et al., 2015).

Martin Seligman devoted his tenure as president of the American Psychological Association to calling for a paradigm shift away from the deficit model to a focus upon “what makes life worth living” (Seligman & Csikszentmihalyi, 2000, p. 5). Seligman and Csikszentmihalyi (2000) credit Abraham Maslow (1954) for coining the term *positive psychology* in his book, *Motivation and Personality*. Arguably, Positive Psychology has roots spanning the past few millennia to the ancient philosophers and religious leaders that expounded

upon happiness, human virtue, and the “good life” (Diener, 2009). This school of thought has flourished in academia and mental health practice since its formal inception as a therapeutic modality in the late 1990’s; Diener (2009) credits this partly to the development of numerous measures of positive constructs such as creativity, life satisfaction, hope, mindfulness, and gratitude among others. Positive psychologists seek to build upon the strengths of people to increase happiness and the ability to flourish in life, rather than to only categorize and correct pathology or personal shortcomings (Seligman & Csikszentmihalyi, 2000; Wright & Lopez, 2009).

Mindfulness

Historically and in current religious practice, especially as it pertains to meditative practice, mindfulness is described as having two essential and integrated components: concentrative and insight-focused meditation (Rapgay & Bystrisky, 2009). The word *mindfulness*, coined by T. W. Rhys Davids in his 1880’s translations of canonical texts, is derived from the ancient term *sati* from the Pāli language used by the earliest Buddhist authors (Ditrich, 2016). Grecucci et al. (2014) posit that the term mindfulness actually results from a combination of both the word *sati* (meaning “awareness”) and *samprajanya* (meaning “clear comprehension”) supporting the opinion that traditional meanings of mindfulness involve dual cognitive functions. The operationalization of the term *mindfulness* for current measurement scales differs from the meaning used by ancient and many modern practitioners of mindfulness.

Contemporary researchers have defined *mindfulness* as increased awareness and skillful response to cognition contributing to distress and maladaptive functioning (Bishop, et al., 2004). Attempts to overcome limitations based on nonspecific operationalizations have led many researchers to offer several somewhat disparate definitions of *mindfulness* over the years (Kabat-

Zinn, 1998; Shapiro & Swartz, 1999; & Segal, Williams, & Teasdale, 2002). The present study addresses a scale that offers an arguably insufficient operational definition of mindfulness. Brown and Ryan (2003) created the Mindful Attention Awareness Scale (MAAS) to quantify *dispositional mindfulness*, a term used to describe “an enhanced attention to and awareness of current experience or present reality.” (p. 822). The MAAS is psychometrically sound with demonstrated construct validity, but it fails to take into account the cognitive activity that almost all existing definitions of mindfulness describe; specifically, the monitoring of present experience with acceptance or curiosity (Creswell & Lindsay, 2014). *Dispositional mindfulness* as measured by the MAAS targets *attention* and *awareness*, two terms that are mistakenly used as interchangeable in contemporary literature, but does not address important mindfulness activities such as *silence*, *stillness*, *labeling*, and *thought regulation* (Rapgay & Bystrisky, 2009).

Gratitude

The nature of gratitude has been a subject of debate among researchers for perhaps as long as the construct has been studied. Differences in definitions of gratitude tend to be based upon whether the construct is interpreted as an emotion or predisposed trait (life orientation) and whether it is composed of only one or multiple factors (McCullough, Emmons, & Tsang, 2002; Wood, Froh, & Geraghty, 2010; & Wood, Maltby, Stewart, Linley, & Joseph, 2008). Definitions of gratitude as an emotion most often relate to altruistic human interactions, whereas trait and state gratitude or *dispositional gratitude* can be a response to life orientation as well as the actions of others (Wood, Froh, & Geraghty, 2010). McCullough et al. (2002) offer a unifactorial measure of *dispositional gratitude* in the Gratitude Questionnaire (GQ-6) that is based upon an operational definition with four distinct dimensions: *intensity*, *frequency*, *span*, and *density*. The test designers assume that dispositionally grateful people will feel the emotion stronger, more

often, towards a greater array of different circumstances, and also towards a greater number of people at one specific time (McCullough et al., 2002). More contemporary research (Wood et al., 2010) addresses a wider conceptualization of *dispositional gratitude* that spans several aspects of perceiving and responding to life events, or an actual personality trait of gratefulness: differences among individuals in the experience of related affect, gratitude towards others, focus on possessions, wonderment when perceiving beauty, expressive behaviors of gratitude, attention to positive aspects in the present experience, appreciation due to a perception of life as fleeting, and positive comparisons.

Mindfulness interventions have flourished over the past decades and are supported as empirically sound and effective (Greco, Baer, & Smith, 2011), whereas gratitude interventions have been both upheld and brought into question by various investigators (Davis, et al., 2016; McCullough, Emmons, & Tsang, 2002). Measures of the mindfulness and gratitude constructs are necessary to determine intervention efficacy as well as the relationships between these traits or behaviors and mental health functioning. Moreover, such measures should be known to be valid for specific population subgroups. The present literature review contains a paucity of confirmatory research to support valid mindfulness and gratitude measures for minority ethnic groups in the United States and none that specifically target Mexican-Americans, the most rapidly growing subpopulation (U.S. Census, 2011) and the largest groups ($n = 56$; $n = 72$) in the current study samples.

Mindful Attention Awareness Scale

The MAAS is a 15-item, psychometrically sound questionnaire used to measure *dispositional mindfulness* (Brown & Ryan, 2003). The importance of this scale is evident in its significant correlation to not only other measures of mindfulness (Schmertz, Anderson, &

Robins, 2009), but also to measures of emotional and physical well-being (Fossati, Porro, Maffei, & Borroni, 2012), personality traits, neural processes, and meditation practice (Brown & Ryan, 2003; Brown, West, Loverich, and Biegel, 2011). Since its initial construction in 2003 the MAAS has not achieved preeminence in the assessment of mindfulness, but alongside the Kentucky Inventory of Mindfulness Skills (KIMS) and the Five Factor Mindfulness Questionnaire (FFMQ) it is one of the most valid and popular measures currently available (Fossati, Porro, Maffei, & Borroni, 2012).

The construction of MAAS items is based on Buddhist principles, publications from practitioners of Mindfulness-Based Intervention (MBI), and teachers of mindfulness (Brown, et al., 2011). This scale has strong predictive power and internal reliability with a coefficient alpha of .82 (Brown & Ryan, 2003; Davis, Lau, & Cairns, 2009). Validation of the MAAS is based on population samples of college and university students ($N = 1253$), local community adults ($N = 74$), members of a local Zen organization ($N = 50$), nation-wide respondents to surveys ($N = 239$), as well as a clinical sample ($N = 41$) of prostatic and breast cancer patients (Brown & Ryan, 2003). The authors provide data of validity, reliability, and confirmatory factor analyses that all far exceed acceptable parameters. However, Brown and Ryan (2003) formed most of their samples near the Canadian border in New York and the ethnic compositions are predominantly Caucasian with less than three percent Hispanic representation. These subjects underrepresent Hispanics and all other major ethnic minorities in our society (U.S. Census, 2012). Analyses of the MAAS have been conducted to investigate its use with specific populations not represented in the original development process. The original English language version of this scale has been used to investigate its predictive power of emotional health variables in African-American college students (Masuda, Anderson, & Sheehan, 2009).

Torrence (2012) demonstrated the psychometric validity of the MAAS for use with elderly subjects and there is an adapted version for adolescents that is upheld for use with normative and psychiatric populations (Brown et al, 2011). The popularity of the MAAS is international as well. Thus far, the MAAS has been translated and determined as valid for use in the Spanish, Estonian, French, German, Chinese, Turkish, Greek, Thai, and Swedish languages (Black, Sussman, Johnson, & Milam, 2011; Catack, 2011; Christopher, Charoensuk, Gilbert, Neary, & Pearce, 2009; Hansen, Lundh, Homman, & Wangby-Lundh, 2009; Jermann, et al., 2009; Leon, Fernandez, Grijalvo, & Nunez, 2013; Mantzios, Wilson, & Giannou, 2015; Michalak, Heidenreich, Strohl, & Nachtigall, 2008; Ruiz, Suárez-Falcón, & Riaño-Hernández, 2016; Seema et al., 2015).

Gratitude Questionnaire

The Gratitude Questionnaire (GQ-6) is a very brief, six-item, self-report scale that measures four facets (intensity, frequency, span, and density) of what its authors refer to as a *grateful disposition* (McCullough, et al., 2002). The GQ-6, with its strong internal reliability of .82 to .87 (McCullough, et al., 2002), is the most widely used measure of the gratitude construct and it has been validated in several different countries (Langer et al., 2016). It has been translated for use in Turkish, Tagalog, Spanish, Dutch, and Chinese (Chen, Chen, Kee, & Tsai, 2009; Datu & Mateo, 2015; Langer, Ulloa, Aguilar-Parra, Araya-Véliz, & Brito, 2016; Jans-Beken, Lataster, Leontjevas, & Jacobs, 2015; Yüksel & Duran, 2012). The versatility of the GQ-6 does not end with just linguistic rendering, it also spans age groups as evidenced in its use with child and adolescent populations in Taiwan, Chile, and the United States (Chen et al., 2009; Froh, et al., 2011; Langer et al., 2016). The GQ-6 creators reduced 39 original statements to just six in the final form using confirmatory factor analyses to identify those items scoring highest on

a powerful, single factor scale (McCullough, et al., 2002). McCullough et al. (2002) found that their assessment is positively correlated with emotional well-being, happiness, hope, and life satisfaction among other indicators of good mental health and negatively related to symptoms of depression and anxiety as well as other undesirable states such as envy. Other researchers have validated this questionnaire, finding that higher scores are predictive of increased autonomy and relatedness in women, and that it outperforms the Big Five personality traits in forecasting well-being (Froh et al., 2011; Wood, Joseph, & Maltby, 2009). Chen and Kee (2008) found that the GQ-6 can predict team satisfaction, life satisfaction, and athlete burnout in Taiwanese high school students. In a somewhat related study, Lanham, Rye, Rimsky, and Weill (2012) administered the GQ-6 among mental health workers in the United States and discovered burnout and job satisfaction also correlate with dispositional gratitude. The present study has found no evidence of prior research that addresses the validity of the MAAS or GQ-6 for use with Latina/o populations in the United States, the most rapidly growing ethnicity that represents the vast majority (> 90%) of individuals inhabiting the regions that share a border with Mexico (U.S. Census, 2011).

CHAPTER III

METHODOLOGY AND FINDINGS

Methods

The MAAS and GQ-6 were administered to Latina/o undergraduate students attending college in the southernmost region of the central United States. Analyses of factor structure and goodness of fit were conducted to determine the validity of these instruments for use with this specific population in further research or therapeutic settings.

Sample Demographics

The current study uses data from two separate samples of Latina/o college students attending a Hispanic Serving Institution (HSI) near the United States' border with Mexico in southern Texas. The samples were originally taken to conduct correlational studies of scales that measure other positive psychology constructs (Vela, J. C., Lu, M. T. P., Lenz, A. S., Savage, M. C., & Guardiola, R., 2016). These preexisting data sets had already been de-identified to protect participants, whose personal information has been and remains entirely unknown to this author. Only data from participants who identified themselves as Mexican-American, Mexican, Latina/o, or Hispanic were included in each of the two samples included in the current study. The SSPS (IBM Corporation, 2013) series mean function was used to account for missing data. The majority of selected respondents in the GQ-6 sample ($N = 127$) are within the age range of traditional post-secondary students, with some individual age outliers ($M = 21.67$, $SD = 3.18$).

gender representation in this sample consist of 66% women ($n = 84$) and 30% men with 4% notidentified ($n = 38$). The age of participants in the MAAS sample ($N = 207$) closely approximates the GQ-6 sample with a mean age of 19.82 ($SD = 1.76$). Gender distribution of the MAAS sample consist of 48% women ($n = 99$) and 50% men ($n = 104$) with 2% not identified. Only respondents who self-identified as Mexican-American, Mexican, Latina/o, or Hispanic were included in the MAAS analysis.

Construct Measurement

Dispositional mindfulness. The MAAS is a 15-item inventory measure of attention to and awareness of present experiences, referred to by the instrument developers as *dispositional mindfulness* (Brown & Ryan, 2003). With a reliability coefficient alpha of .82 and strong factor loading for each test item determined by structural equation models and factor analyses with varying population samples, Brown and Ryan (2003) provide one of the most popular measurers of the mindfulness construct available today. Assessment subjects select responses on a Likert scale ranging from “1” (Almost Always) to “6” (Almost Never). Verbatim items include, “I find it difficult to remain focused on what’s happening in the present” and “I rush through activities without being really attentive to them.” Scoring of the MAAS involves computing a simple mean of the item scores, a higher mean suggests higher dispositional mindfulness.

Dispositional gratitude. The GQ-6 is supported by the extant literature to measure *dispositional gratitude* as a construct distinct from other related affective traits (McCullough, et al., 2002). Responses to this instrument require a number selection ranging from “1” for *strongly disagree* to “7” for *strongly agree*, with reverse scoring on the third and sixth items. Results on the GQ-6 range from total scores of six to 42 and represent greater disposition to gratitude as scores increase. Verbatim items include, “I am grateful to a wide variety of people” and “I have

so much in life to be thankful for.” McCullough, et al. (2002) report strong internal reliability (alphas ranging from .82 to .87), discriminant validity between the GQ-6 and other measures of related constructs, and convergent validity with informant ratings of gratitude disposition.

The GQ-6 is constructed of six items that loaded strongly on a single factor after initial exploratory factor analysis revealed loadings on secondary factors for the remainder of the original 39 items proposed (McCullough, et al., 2002). The developers of the GQ-6 (McCullough, et al., 2002) provide robust validity data for the selected six items with structural equation models; goodness of fit for the instrument is well within acceptable parameters (chi-square = 30.34; comparative fit index = .95; standardized root-mean-square residual = .04).

Data Analysis

Statistical power analysis. Adequate sample size for goodness of fit analyses in the current study is validated by the criteria ($n/p \geq 10$) set forth by Stevens (2009). Sample sizes of 207 and 127 for the MAAS and GQ-6 respectively are considered adequate for judging model fit.

Preliminary analysis. The Statistical Package for the Social Sciences (SPSS; IBM Corporation, 2013) provides a series mean function that is used in the present study to replace missing values in the existing data (Ikonomopoulos, Lenz, Guardiola, & Aguilar, 2016).

Primary analysis. Determination of model fit for the GQ-6 and MAAS data samples is based upon analyses conducted with the SSPS Analysis of Moment Structures Software (AMOS), Version 22 (SPSS; Arbuckle, 2012; IBM Corporation, 2013). Item-factor structures for each measure are investigated with AMOS 22.0 (Arbuckle, 2012). The standards for strength of model fit for the current study are based upon Dimitrov (2013): Goodness of Fit Index (GFI) > .90, Minimum Discrepancy divided by Degrees of Freedom (CMIN/DF) < 2, $p > .05$, Root Mean Square Residual (RMR) < .08, Comparative Fit Index (CFI) > .90, Root Mean Square Error of

Approximation (RMSEA) < .10, and Tucker-Lewis Index (TLI) > .90 (Ikonomopoulos et al, 2016). To address poor model fit, modification indices from the AMOS software identify measurement items that might pair error terms and these items are covaried before a secondary analysis of the entire measure (Ikonomopoulos et al., 2016). For factor models that continue to show parameters of fit outside of preset ranges (Dimitrov, 2013), correlation loadings of less than .70 on specific scale items are deleted one-by-one in ascending order of standardized regression weight until a final model with acceptable fit is determined (Ikonomopoulos et al., 2016). After final models are selected, alpha coefficients are calculated to identify internal consistency among scoring in the scales (Dimitrov, 2013).

Results

Mindful Attention Awareness Scale

Primary analysis. A compelling chi-square for the MAAS pertaining to the current sample was found: $\chi^2(90) = 213.79, p < .001$. According to the set guidelines (Dimitrov, 2013), the original model for the scale is an improper fit with this sample. The following indices support this interpretation: GFI = .886, CMIN/DF = 2.376, $p = .000$, RMR = .155, CFI = .862, RMSEA = .08, and TLI = .839.

Final model. A pairing of error terms for items 1 and 4 (“I could be experiencing some emotion and not be conscious of it until some time later.” and “I tend to walk quickly to get where I’m going without paying attention to what I experience along the way.”) did not result in goodness of fit. To determine a model with acceptable fit for the sample data, correlation loadings of less than .70 for scale items were deleted one-by-one in ascending order of standardized regression weight (item 11 [.302], item 2 [.367], item 1 [.38], item 15 [.406], item 12 [.425], item 6 [.494], item 4 [.503], item 5 [.515], item 13 [.522], item 3 [.542], item 9 [.628],

and item 10 [.677]) until a final model with acceptable fit became evident. AMOS analyses were conducted on the remaining model composition after each item deletion until acceptable fit indices were produced. Goodness of fit according to the Dimitrov (2013) procedure was established after the deletion of items 1, 2, 3, 4, 5, 6, 11, 12, 13, and 15. These items were then individually included once more into the model by descending order of standardized regression weight until parameters exceeded acceptable values. The inclusion of items 3 and 5 in the adjusted measure were found to provide values in the acceptable range both in isolation and combination, resulting in a final or default model of the MAAS with goodness of fit that retains items 3, 5, 7, 8, 9, 10, and 14 (“I find it difficult to stay focused on what’s happening in the present.”, “I tend not to notice feelings of physical tension or discomfort until they really grab my attention.”, “It seems I am ‘running on automatic,’ without much awareness of what I’m doing.”, “I rush through activities without being really attentive to them.”, “I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there.”, “I do jobs or tasks automatically, without being aware of what I’m doing.”, and “I find myself doing things without paying attention.”). The following indices support this model: GFI = .978, CMIN/DF = 1.208, $p = .261$, RMR = .065, CFI = .994, RMSEA = .031, and TLI = .991. Internal reliability of scores for this final model is $\alpha = .84$. The addition of item 6 (“I forget a person’s name almost as soon as I’ve been told it for the first time.”) to the final model also produces indices of acceptable fit with the exception of one outlier: an RMR of .081 that exceeds the .08 criterion. It is likely that this small value lacks significant meaning and that item 6 can also be included in the default model. The AMOS data in the current study is the basis for a proposed 8-item version of the MAAS for use with Latina/o college students and perhaps with other populations in this diverse ethnicity. The following indices support an 8-item model with item

6 added: GFI = .971, CMIN/DF = 1.280, $p = .179$, RMR = .081, CFI = .990, RMSEA = .036, and TLI = .985. Internal reliability of scores for a final model including item 6 is $\alpha = .84$.

Gratitude Questionnaire

Primary analysis. A compelling chi-square for the GQ-6 pertaining to the current sample was found: $\chi^2(9) = 42.82$, $p < .001$. According to the set guidelines (Dimitrov, 2013), the original model for the scale is an improper fit with this sample. The following indices support this interpretation: GFI = .906, CMIN/DF = 4.758, $p = .000$, RMR = .172, CFI = .838, RMSEA = .174, and TLI = .731.

Final model. A pairing of error terms for items 1 and 4 (“I have so much in life to be thankful for.” and “I am grateful to a wide variety of people.”) as well as items 3 and 6 (“When I look at the world, I don’t see much to be grateful for.” and “Long amounts of time can go by before I feel gratitude to something or someone.”) resulted in goodness of fit for the GQ-6 with the current sample. The following indices support this model in its unaltered form: GFI = .971, CMIN/DF = 1.569, $p = .139$, RMR = .091, CFI = .981, RMSEA = .068, and TLI = .959. Internal reliability of scores for this final model is low at $\alpha = .27$.

CHAPTER IV

SUMMARY AND CONCLUSION

Discussion

The purpose of the current study is to determine acceptable factor structures for scores of *dispositional gratitude* and *dispositional mindfulness* that can be justified within samples of Latin/o college student populations. The final model for the MAAS did not require pairing of error terms, but did necessitate the deletion of seven items that have weak relationships with the remaining scale composition. It is possible that Latin/o college students in South Texas perceive emotional experiencing, carelessness, active listening, and present attentional awareness differently than other demographic groups or attach different meaning to these traits. Notwithstanding the need for further research into the preceding, culture-specific postulates, the 8-item final model of the MAAS does yield psychometric properties well within acceptable parameters; suggesting that the remaining items in the final model are cross-culturally relevant for construct measurement in both majority ethnicity and Latina/o college student groups. It is interesting to note that the Spanish version of the original MAAS has been demonstrated to be a sound measure of mindfulness in Latina/o samples in other countries such as Chile and Columbia (Leon et al., 2013; Ruiz, Suárez-Falcón, & Riaño-Hernández, 2016). There is a chance that semantic differences may have led to poor model fit for the original form in this study and, unfortunately, English as a second language demographics were not recorded for the purposes of

the present or prior investigations using this sample. Determining a good factor structure for the GQ-6 with the given Latina/o sample did not require the deletion of any scale items as was required for the MAAS. A good model fit was achieved after the pairing of two sets of error terms to address covariance; pertaining to items 1 and 4 as well as 3 and 6 respectively. Covariance suggests a strong relationship or linear association between two items; in this case, items 1 and 4 may be related due to similar semantic interpretation of the words “thankful” and “grateful” and items 3 and 6 may be associated because the two items are reverse-scored for *dispositional gratitude* measurement. The only outlier that failed to meet Dimitrov’s (2013; $RMR < .080$) standards for factorial structure is the standardized root mean square residual (RMR) that produced a value of .091 in the final AMOS analysis. For the purpose of this study, an RMR result only exceeding the standard by .011 is not considered to have significance great enough to require item deletion. The results support many other investigations of GQ-6 use with diverse ethnicities that suggest it is psychometrically sound across different cultures, countries, and languages (Chen et al., 2009; Datu & Mateo, 2015; Langer et al., 2016; Jans-Beken et al., 2015; Yüksel & Duran, 2012).

Implications for Practice and Research

The MAAS and GQ-6 can be used by practitioners working with Latina/o college students to evaluate intervention effectiveness and to gain collateral indicators of psychological well-being. These measures might also have significance for program evaluation studies that consider impacts upon this vast population. Mindfulness modalities are prevalent in the counseling field and achieving greater acceptance due to classification as evidence-based practice, e.g. Mindfulness-Based Stress Reduction (MBSR), Dialectic Behavior Therapy (DBT), etc. Gratitude exercises have also become popular in recent years and there is mounting

evidence in support of this construct being positively correlated to emotional well-being (Wood, Froh, & Geraghty, 2010). The GQ-6 is supported for use in its original form with Latina/o students by this study; therapists may use this scale to identify treatment goals, monitor personal growth, and add collaborative data to assessments of positive psychological functioning. The reduced form of the MAAS that the current study proposes could be adopted for use with Latina/o college students to not only measure treatment outcomes, but perhaps also to predict the fitness of clients for implementation of mindfulness interventions. The development of new evidence-based interventions that specifically target Latino populations may be informed by the use of alternate forms of the MAAS and other mindfulness measures. The current paper may help counselor educators inform graduate students of the need for further attention to and understanding of multicultural variables in assessment, specifically addressing the lack of culturally sensitive and appropriate scales for use with Latina/o clients. The MAAS measures *dispositional mindfulness*, not mindfulness practice; studies employing this scale to evaluate intervention effects upon one's disposition to be mindful after treatment would either provide supportive evidence or illuminate shortcomings in established as well as newly proposed techniques. Argument among current researchers persists regarding the assessment of a mindfulness construct, but recent investigation suggests that mindfulness interventions do increase mindfulness on self-report scales (Creswell & Lindsay, 2014). Practitioners may find value in using this measure to determine if interventions actually impact client disposition to mindfulness.

Further research is needed to support the reduced format of the MAAS for Latina/o populations that the current paper suggests. More evidence is needed to ensure accurate assessment of traits, symptoms, and treatment outcomes for minority ethnicities; Latin-

Americans are the largest and fastest growing of these groups (U.S. Census, 2011). In fact, the current review of literature affirms that there is a paucity of measures that are validated for use with this burgeoning group of already underserved people in the United States (Piña-Watson et al., 2013). Additional studies that investigate convergent and discriminant properties of mindfulness with other constructs, perhaps *life satisfaction* or subjective *happiness*, would be valuable contributions to the existing literature. As a rapidly growing number of mental health providers move away from deficit models to strength-based interventions, the importance of finding evidence of concurrent and discriminant validity between instruments measuring positive psychology constructs becomes more pressing. Studies of mindfulness and, to a lesser degree, gratitude continue to proliferate, but where is the much needed focus on these constructs within minority groups? Spanish-only and second-language, English speaking immigrants and first generation American citizens also deserve to be accurately assessed by mental health practitioners using instruments specifically designed for them, or at least with existing instruments that are shown to be culturally valid measures.

Limitations

A translated version of the MAAS for Spanish speaking people has been supported as valid without deleted items when administered to samples of Chilean and Columbian populations. It is possible that error terms in the present MAAS analysis may have a basis in semantic difference. The data used for the current study does not contain information related to preferred language or English fluency among the sampled Latina/o college students, bringing into question the possibility of language having a confounding effect upon assessment results. Although of acceptable size, the current samples have questionable generalizability in that randomization, clinical populations, greater age and socioeconomic stratification, geographic

diversity, and span of academic achievement are not provided or represented. Other measures of validity alongside confirmatory factor analyses for both the GQ-6 and MAAS would also be valuable contributions to the extant knowledge of these measures.

Conclusion

This study discusses confirmatory factor analyses of the MAAS and GQ-6 when administered to Latina/o college students attending a HSI near the border with Mexico in Texas. A reduced-item version of the MAAS is suggested for further investigation due to the sequential AMOS analyses conducted to discover goodness of fit with this limited population. Much research remains to be carried out to inform professionals and academia of positive psychology constructs, especially as these are assessed in members of minority ethnicities in the United States. Evidence for the validity of GQ-6 scale with Latina/o college student populations is provided and possible problems with the MAAS in its original form have been brought to light. This study adds to the existing knowledge of construct measurement that is of likely use to both researchers and mental health practitioners.

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APPENDIX A

APPENDIX A

Table 1

MAAS Final Model Factor Pattern Coefficients (Standardized and Unstandardized Estimates)

Item	β	B	SE
14	0.727	1	
10	0.686	0.959	0.103
9	0.608	0.881	0.107
8	0.743	0.975	0.097
7	0.786	1.103	0.105
6	0.494	1.33	0.276
5	0.5	0.755	0.111
3	0.514	0.722	0.103

APPENDIX B

APPENDIX B

Table 2

GQ-6 Final Model Factor Pattern Coefficients (Standardized and Unstandardized Estimates)

Item	β	B	SE
6	0.328	1	
5	-0.594	-0.946	0.252
4	-0.799	-1.69	0.478
3	0.406	0.95	0.243
2	-0.626	-1.38	0.362
1	-0.968	-1.14	0.309
Paired Items			
e1 - e4	0.765	0.304	0.235
e3 - e6	-0.373	-2.44	0.089

APPENDIX C

APPENDIX C

Figure 1

Mindful Attention Awareness Scale

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

	1	2	3	4	5	6
	Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never
I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
I find myself preoccupied with the future or the past.	1	2	3	4	5	6
I find myself doing things without paying attention.	1	2	3	4	5	6
I snack without being aware that I'm eating.	1	2	3	4	5	6

APPENDIX D

APPENDIX D

Figure 2

The Gratitude Questionnaire: Six-Item Form (GQ-6)

The Gratitude Questionnaire-Six Item Form (GQ-6)

By Michael E. McCullough, Ph.D., Robert A. Emmons, Ph.D., Jo-Ann Tsang, Ph.D.

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

- 1 = strongly disagree
- 2 = disagree
- 3 = slightly disagree
- 4 = neutral
- 5 = slightly agree
- 6 = agree
- 7 = strongly agree

- ___ 1. I have so much in life to be thankful for.
- ___ 2. If I had to list everything that I felt grateful for, it would be a very long list.
- ___ 3. When I look at the world, I don't see much to be grateful for.*
- ___ 4. I am grateful to a wide variety of people.
- ___ 5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.
- ___ 6. Long amounts of time can go by before I feel grateful to something or someone.*

* Items 3 and 6 are reverse-scored.

BIOGRAPHICAL SKETCH

Dion Beryl Smith is a current resident of the Rio Grande Valley; correspondence may be sent to 26593 Berrier Road at San Benito, Texas 78586. Mr. Smith was raised by his parents in the southernmost area of Texas where he participated in the family's numerous businesses. His father Jack Smith made sure to also involve him in the many charitable activities undertaken due to the family's dedication to Scottish Rite Freemasonry.

Mr. Smith attended Texas Southmost College, the University of New Mexico at Albuquerque, Texas State University, and the University of Texas Rio Grande Valley. In 1991, the author received a Bachelor's degree in Psychology with a minor in English from Texas State University. Three years later, he graduated with a Master's degree in School Psychology from the same institution. Mr. Smith returned to graduate school many years later to complete a Master's of Education in Counseling and Guidance from the University of Texas Rio Grande Valley in the fall of 2016.

The author began his work in the helping professions as a mental health technician and went on to work with developmentally disabled, psychiatric, and traumatic brain injury populations. As a specialist in school psychology, Mr. Smith provided psychoeducational, personality, and neuropsychological assessments in both school districts and private practices under the supervision of licensed psychologists. He now happily works in a psychiatric hospital providing assessments and is also a chemical dependency counselor in private practice.