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Abstract: Empirical explorations of moral virtues have increased dramatically recently. This paper introduces a new method of assessing moral virtue using gratitude as an example; a virtue that continues to be a topic of great interest in psychology, philosophy and education. We argue, and demonstrate empirically, that to comprehensively examine a moral virtue, it is necessary to explore its cognitive, affective, attitudinal (including motivational), and behavioural aspects. We have created the 'Multi-Component Gratitude Measure' (MCGM) comprised of four components, each designed to assess a distinct dimension of the virtue of gratitude: (a) conceptions (or understandings) of gratitude; (b) grateful emotions; (c) attitudes towards gratitude; and (d) gratitude-related behaviours. In contrast to existing measures, the MCGM aims to comprehensively examine the major components that constitute this complex moral construct. In two studies we illustrate the value of assessing these four components of gratitude and how individuals can differ in the number and 'type' of components they exemplify. Importantly, we demonstrate how well-being increases linearly with the number of components a person possesses, as measured by three distinct measures of well-being. We discuss individual differences in gratitude experience and what this means for personal flourishing as well as future measurement of moral constructs.

***Cover Letter and Word Count**

A New Approach to Measuring Moral Virtues: The Multi-Component Gratitude Measure

Journal of Personality and Individual Differences

Blaire Morgan*, Liz Gulliford and Kristján Kristjánsson, University of Birmingham, U.K.

Dear Editor,

We hereby submit a revised version of the above named paper for review. In response to the helpful feedback that the two reviewers provided, we have made numerous changes to the paper. We have tried to adequately address all of the revision points that have been highlighted.

We confirm that this manuscript has been submitted solely to the Journal of Personality and Individual Differences and is not published, in press or submitted elsewhere. We also confirm that this work meets ethical guidelines as set out in the UK. Supplementary material to appear online includes design information for one component of a new measure; participant/demographic information for the studies presented; outputs for item correlations and reliability, a hierarchical multiple regression and an ANOVA. One section of the results (the hierarchical regression) has been discussed within an *unpublished* conference paper and a research report which are available on our Research Centre's webpage (www.jubileecentre.ac.uk). Please find details of all authors below.

We look forward to hearing from you,

Blaire Morgan, Liz Gulliford and Kristján Kristjánsson

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Word count: 9,908

Dear Editor

Thank you for your recent feedback on our manuscript, "A New Approach to Measuring Moral Virtues: The Multi-Component Gratitude Measure" which we submitted to PAID. We really appreciate the opportunity to revise and resubmit this paper.

In response to the helpful feedback that the two reviewers provided we have made numerous changes to the paper. We have tried to adequately address all of the revision points that have been highlighted which I describe below.

Revisions and responses

The Conceptual Component:

Reviewer 1 highlighted the need to clarify the purpose of the conceptual component of our gratitude measure and to elaborate on its value. Reviewer 2 asked that we explain why the additional analyses on the conceptual component were necessary.

In response to these comments, we have discussed the purpose and possible use of the 'gratitude profile' in more detail now; we have now signposted how the analysis of the profile can be extended and carefully signposted other publications that expand on the conceptualisation of gratitude in more depth. We have expanded the 'Value of the Conceptual Component' section to better describe what the additional analyses add to the overall argument. We also revisit this in the General Discussion.

The Principal Components Analysis:

Reviewer 1 posed several questions about the PCA which highlighted that the description of this analysis needed to be made clearer in the paper.

We have expanded and refined the discussion of the PCA adding the additional information that was requested and ensuring that all questions would now be clear on reading this refined write up. Eigenvalues, % variance and inter-correlation values have been added to Table 1.

This reviewer also asked for all loadings and communalities to be added to Table 1 – these have now been added.

Confirmatory Factor Analysis:

Reviewer 1 asked that we suggest the factor structure underlying the MCGM. They also asked that we test this with a CFA.

We added a description of the hypothesised structure in the results section of Study 1. We then tested this with the data from Study 2 by conducting a CFA. The purpose, procedure and results of this CFA have been added to Study 2 results section.

'Person Type' Analysis:

Reviewer 1 highlighted that we make the distinction between 'high' and 'low' levels in the person-type analyses yet responses tend to cluster on the top half of the scale. Therefore, 'high' and 'low'

might not be an accurate description. He/She highlighted that means for each MCGM component were not made clear in Study 2 like they were in Study 1.

Means for each component in Study 2 have now been added to Table 3 and signposted in the text.

The participant mean was used in the analysis to create groups with similar numbers and to prevent an exaggeration of the two groups (in endnote 6 we explain our decision). If the scale midpoint had been used this would have exaggerated the difference between the two groups, whilst using the participant mean serves to ensure that we are considering the distribution around the scale itself – this scale, like most other scales that measure virtues or positive character strengths tend to be negatively skewed. To address the point above the terms 'high' and 'low' have been changed to 'above average' and 'below average' and the reference to participants as 'deficiently grateful' has been removed (I completely agree with this comment).

Formatting/ grammatical issues:

Several formatting issues were raised including inconsistency in table formatting and removing repetitive data in Table 4 (which is now Table 2).

Both of these points have been addressed.

Reviewer 1 signposted that some of the results were not in past tense.

This has been rectified and should now all be in past tense.

Reviewer 1 noted that we referred to Study 3 but there are only two studies.

This was meant to say 'Study 2' and has been changed accordingly.

Standardised scores:

Reviewer 2 asked about how the mean conceptual scores were calculated and whether we used standardised scores.

We use standardised scores and this has been noted in endnote 6.

Means and SDs:

Reviewer 2 asked that the means, standard deviations, and corrected item-total correlations of each item of the MCGM and the means, standard deviations, and internal consistencies of the MCGM scales and the intercorrelations among the MCGM scales (and the six components from the PCA, if relevant) should be reported for both studies.

Means, SDs for and corrected item-total correlations for each item of the MCGM items and subscales for Study 1 and 2 have been added to Appendix 5 in the supplementary information (to keep the number of tables down as per Reviewer 2's comment).

Means and SDs for each component of the MCGM can be found in Study 1 results and discussion Study 2 Mean & SD of MCGM components have been added to Table 3; also added are Study 2 Means and SD for gratitude measures and wellbeing scales. These are signposted in the main body of the text.

MANOVA:

Reviewer 2 comment: "The MANOVA reported in Table 6 reports the overall F-values, which are interpreted as "The results demonstrate that more permissive understandings and experiences of gratitude (as indicated by higher conceptual Are and Degree scores) give higher scores on the GQ6, GRAT, and Appreciation scale and on components B, C and D of the MCGM (see Table 6)." (p. 23). However, a significant F-value only indicates that there is a difference somewhere between the groups, but neither which groups are different nor how they differ. Also, could the authors elaborate on the added value of these MANOVA analyses (breaking down the dimensional variables into three equal groups) in comparison to the correlations shown in Table 4?"

(NB Table 6 is now called Appendix 4) The table in Appendix 4 now shows the significance levels from the post-hoc Bonferroni tests. We point out throughout the paper the importance of the conceptual component but we also observe that it is the emotion and behaviour components that are most strongly linked to wellbeing in the person type analysis. Therefore, this section explicitly references the value of having a conceptual component as we thought this could be picked up otherwise. The motivation for this analysis and elaboration is now given in the 'Value of the Conceptual Component Section'.

<u>Gratitude versus personality:</u>

Reviewer 2 suggested that we don't give sufficient argument for why a gratitude measure is necessary when personality account for a large proportion of the variance.

We have noted that other papers have tackled this issue and also added a reference to a paper by Hunsley and Meyer (2003). These authors note that the interpretation of how meaningful it is to have an incremental validity variable of a particular size is contentious (p. 450), and therefore they produced guidelines to assist in this endeavour. They argue that scores of r = .15 to .20 on the third step should be deemed 'a reasonable contribution to the existing equation' (p. 451); our r values are over this threshold as can be seen in Appendix 3. This reference has been added as an endnote (endnote 11).

<u>Reliability and Validity of existing scales:</u>

Reviewer 2 noted that we did not present any info regarding the reliability and validity of responses to the various scales that we used.

Whilst the Cronbach's alpha values from the original studies were described, we had not presented reliability scores for our own data set; this has been added to Table 2.

<u>Other issues:</u>

Reviewer 1 asked about negatively keyed items; this has been made clear in Table 1.

Reviewer 2 asked about missing data values; this has now been clarified (the online questionnaire was set to 'require' answers from participants and so there are no missing values in the variables described here).

Reviewer 2 asked about parallel analysis; we now document with the CFA that the factors extracted from the PCA are a good fit for the data. The structure of the measure was decided in Study 1 based on both statistical and theoretical assumptions.

Reviewer 2 mentions forward procedures for the hierarchical regression: To show incremental validity we entered demographic variables, personality variables and then the existing gratitude measures to show explicitly what *remaining* variance would be predicted by the MCGM. We were

following the technique described in a previous Personality and Individual Differences paper by Wood and colleagues (2008). The output still demonstrates the individual value of each of the four MCGM components and does so *after* taking into consideration the existing gratitude measures and control variables.

Reviewer 2 asked about the beta values reported in Appendix 3: we have clarified that these betas are from the final step of the regression.

Reviewer 1 noted that the highlights do not conform to the journal's guidelines: these have been amended to be 3 to 5 bullets with a maximum of 85 characters.

Reviewer 2 highlighted that we sometimes used strong causal language even though these studies are cross-sectional; we appreciate this point and have amended our phrasing in places. Relatedly, this reviewer picked up on the fact that we should rephrase a sentence around the psychometric properties of scales – we have followed their advice on this. Same point around use of 'independent' and 'dependent' variables which are now talked about in terms of 'predictor' and 'outcome' variables.

Reference/citation issues were picked up on, including missing commas, uses of AND/& and incorrect use of issue number – we have tried to spot as many of these as possible which have been amended.

Reviewer 2 said that they confused about our conception of attitude as in social psychology attitudes are considered to encompass cognitive, affective and behavioural dimensions; we have clarified what we mean by attitudes here when introducing the rationale for the MCGM.

Reviewer 2 wanted to know what had been communicated to participants in the studies and how participants were recruited; the recruitment information was already present in the text but we added a sentence about instructions to participants in the method section of both Study 1 and 2.

Reviewer 2 commented on the number of tables being overwhelming; we agreed. We have removed non-vital information, tables and figures from the text. Two tables have been removed; two figures have been removed; and one table has been moved to the Appendix (Appendix 4, ANOVA evidencing value of conceptual component).

Word limit – around 2,500 words have been lost from the paper from refining and honing the text and losing information that is not vital to the understanding or evaluation of the measure. This has been done throughout the entire length of the paper.

***Title page with author details**

A New Approach to Measuring Moral Virtues: The Multi-Component Gratitude Measure

Blaire Morgan*, Liz Gulliford and Kristján Kristjánsson, University of Birmingham, U.K.

We confirm that this manuscript has been submitted solely to the Journal of Personality and Individual Differences and is not published, in press or submitted elsewhere.

This is an invited resubmission to Personality and Individual Differences. We also confirm that this work meets ethical guidelines as set out in the UK. Supplementary material to appear online includes design information for one component of a new measure; participant/demographic information for the studies presented; outputs for item correlations and reliability, a hierarchical multiple regression and an ANOVA. One section of the results (the hierarchical regression) has been discussed within an *unpublished* conference paper and a research report which are available on our Research Centre's webpage (www.jubileecentre.ac.uk). Please find details of all authors below.

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Highlights

- This paper introduces a new method of assessing moral virtue
- The 'Multi-Component Gratitude Measure' taps four distinct dimensions of gratitude
- Individuals differ in the number and ‘type’ of components of virtue they exemplify
- Well-being increases linearly with the number of components a person possesses
- We highlight implications for future measurement of moral constructs

A New Approach to Measuring Moral Virtues: The Multi-Component Gratitude Measure

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Abstract:

Empirical explorations of moral virtues have increased dramatically recently. This paper introduces a new method of assessing moral virtue using gratitude as an example; a virtue that continues to be a topic of great interest in psychology, philosophy and education. We argue, and demonstrate empirically, that to comprehensively examine a moral virtue, it is necessary to explore its cognitive, affective, attitudinal (including motivational), and behavioural aspects. We have created the 'Multi-Component Gratitude Measure' (MCGM) comprised of four components, each designed to assess a distinct dimension of the virtue of gratitude: (a) conceptions (or understandings) of gratitude; (b) grateful emotions; (c) attitudes towards gratitude; and (d) gratitude-related behaviours. In contrast to existing measures, the MCGM aims to *comprehensively* examine the major components that constitute this complex moral construct. In two studies we illustrate the value of assessing these four components of gratitude and how individuals can differ in the number and 'type' of components they exemplify. Importantly, we demonstrate how well-being increases linearly with the number of components a person possesses, as measured by three distinct measures of well-being. We discuss individual differences in gratitude experience and what this means for personal flourishing as well as future measurement of moral constructs.

Keywords: Gratitude, Measurement, Virtue, Individual Differences, Personality, Well-being

Introduction:

The measurement of moral virtues is notoriously difficult (Curren & Kotzee, 2014; ThirdAuthor, 2015, chap. 3). There is much debate around the salient components of moral virtues and, more generally, of moral functioning, that would form the objects of measurement (Curzer, 2012). The present authors' viewpoint on measuring virtue focuses on the need to capture multiple components of moral functioning: cognitive; affective; conative/attitudinal; and behavioural. We suggest that cognitions influencing when and why a virtue is experienced constitute vital information that *can* and *should* be captured. Our approach brings together (philosophical) conceptual inquiry with (psychological) scale development.

The aims of this paper are threefold: to (1) highlight how conceptualisations of a construct feed into the measurement of the construct, in this case moral virtue; (2) demonstrate how measures of moral virtue should encompass multiple components –*cognitive, affective, conative/attitudinal* and *behavioural* –to comprehensively examine virtue; and (3) provide a new measure of gratitude.

The following section describes the various conceptualisations of gratitude debated in psychology and philosophy, underscoring the diversity in understandings of this moral virtue. We hope that readers will recognise how the presence of differing conceptualisations could impact upon the experience of grateful emotions, attitudes towards gratitude and gratitude-related behaviours, and subsequently influence individuals' responses to existing gratitude scales.

After highlighting ways in which gratitude might be conceptualised, and the multiple components that need measuring to comprehensively examine this construct, we introduce the 'Multi-Component Gratitude Measure' (MCGM). Through a series of empirical tests of the MCGM we illustrate how conceptualisations of a construct contribute to its assessment, the relationship between cognitive, affective, attitudinal and behavioural components of gratitude and how these four components correlate with individuals' well-being. The multi-component approach and examination of conceptualisations of constructs could be adapted and utilised to examine other

moral virtues (and even non-moral constructs). The remainder of this paper focuses on the particular moral virtue of gratitude, as a case in point.

Gratitude:

Gratitude is no longer 'one of the neglected virtues in psychology' (Watkins, Woodward, Stone, & Kolts, 2003, p. 431); it has received copious attention, in psychology and philosophy. Motivating this research focus are the benefits gratitude offers, both individually and socially. Early research suggested that increased levels of gratitude relates to increases in subjective well-being (Emmons & McCullough, 2003), and more recent findings indicate that gratitude plays an important role in building and maintaining relationships (Algoe, Haidt, & Gable, 2008; Bartlett et al., 2012), and promoting prosocial behaviours (Bartlett & De Steno, 2006). The positive effect of gratitude extends to sleep patterns (Wood, Joseph, Lloyd, & Atkins, 2009), academic attainment (Froh, Emmons, Card, Bono, & Wilson, 2011; Froh, Miller, & Snyder, 2007), as well as protecting against depression, anxiety and materialism (Froh et al., 2007; 2011).

Gratitude is not a simple construct; researchers have argued, for instance, about the conceptual distinction between gratitude and appreciation and whether gratitude *must* involve a distinct benefactor (Adler & Fagley, 2005; Second, First, & ThirdAuthor, 2013; Lambert, Graham, & Fincham, 2009; Steindl-Rast, 2004).

In this paper, we argue that there is a need for a more comprehensive measure of gratitude that can adequately assess its multifaceted contours. We begin with an overview of what makes gratitude so complex, followed by a description of existing measures and their limitations. Subsequently, in three empirical studies, we present the MCGM alongside three existing gratitude scales. Responses to the MCGM items demonstrated adequate reliability and validity *in this sample* when compared with the existing measures. Further research is necessary to address the MCGM's reliability across different samples and test administrations (see Thompson, 2002). However, it

should be noted that participants involved in the study were intentionally drawn to create a sample representative of the 'general population' (see Appendix 2).

We end with recommendations about the future application and examination of the MCGM.

Differing Conceptualisations of Gratitude:

We have already mentioned some of the controversies that surround the structure of gratitude. Other complexities involve intentions; must a benefit be *intentionally* rendered, or is it possible to be grateful for a benefit that came about by accident? Attribution theorist Fritz Heider (1958) took it for granted that people feel grateful when they recognise themselves to be the recipients of an intentional act of kindness. Relatedly, Tesser, Gatewood, & Driver (1968) established that gratitude is determined by appraising benefits to be not only intentional but also altruistic (not driven by ulterior motives). They identified two further 'determinants' of gratitude; the benefit must be perceived by the recipient as *valuable* and *costly* to the benefactor. Wood, Joseph, & Maltby (2008) supported this position, finding that more than eighty percent of the variance in how much people thought they would experience gratitude in a situation was explained by perceptions of cost, value and altruistic intention.

In practice, benefactor intention operates not as a necessary *condition* of gratitude, but rather as an intensity variable which, if present, increases reported gratitude (see SecondAuthor et al., 2013, p. 303). As such, gratitude might well be felt in circumstances where the benefactor's intentions were not uncomplicatedly benign. We found that while malicious and ulterior motives significantly undermined reported gratitude, they did not disqualify it (Second & FirstAuthor, 2015).

Value of the benefit has been identified as a further determinant of gratitude (Tesser et al., 1968; Wood et al., 2008). However, most of us can readily identify with the experience of being the recipient of an unwanted (i.e. subjectively non-valuable) gift and being 'grateful for the thought' when an intended benefit fails to materialise. It seems reasonable to suggest that for some people

the *actual value* of a tangible benefit is key to their experience of gratitude, while for others the *intention* might be more salient.

One final conceptual issue is whether gratitude is an inherently positively valenced concept or whether it encompasses negative elements. It has been dubbed 'the quintessential positive psychological trait' (Wood et al., 2009, p. 43). Gratitude's association with increased subjective well-being and positive affect (e.g., Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008), make the characterisation of gratitude as positive unsurprising.

We maintain, however, that the picture is far more complex and that gratitude is better characterised as a *mixed* emotion rather than an unambiguously positive one (Second & FirstAuthor, 2016; First, Second, & AnotherAuthor, 2015). In a prototype analysis of gratitude in the UK, we found that, alongside positive features, gratitude was also associated with features participants rated as negative, such as obligation, indebtedness, guilt and embarrassment (First, Second, & ThirdAuthor, 2014). Though some have attempted to dissociate gratitude from indebtedness (e.g., Watkins, Scheer, Ovnicek, & Kolts, 2006), the distinction does not appear to be as clear-cut, at least to the layperson (FirstAuthor et al., 2015).

This overview illustrates that there are multiple ways in which gratitude can be understood and experienced. This creates complications for its measurement; how do we validly assess gratitude when it is so notably diverse in its conception?

Three measures of gratitude are commonly implemented in research to date. The GQ6, created by McCullough and colleagues (2002), is a 6-item scale which assesses intensity, frequency, span and density of gratitude. The Gratitude, Resentment and Appreciation Test (GRAT, Watkins et al., 2003) consists of three subscales; (1) Sense of Abundance; (2) Simple Appreciation; and (3) Appreciation of Others[1]. Finally, the Appreciation Scale, developed by Adler & Fagley (2005), assesses eight subscales: 'Have Focus'; 'Awe'; 'Ritual'; 'Present moment'; 'Self/Social comparison'; 'Gratitude'; 'Loss/Adversity'; and 'Interpersonal'[2].

The majority of items in existing gratitude measures aim to assess grateful *emotions* only. Most notable is the GQ6, where all 6 items arguably assess feelings of gratitude. The emphasis on emotion is evident in the definition of gratitude offered: 'a tendency to recognise and respond with grateful emotion to the roles of other people's benevolence' (McCullough et al., 2002, p. 112). Whilst *feelings* of gratitude are clearly a crucial part of gratitude, understood as a complex trait of character, emotion is not the only dimension involved. A second component of gratitude is behaviour: for instance, expressions of thanks or recognition of others' beneficence. Yet this element of grateful experience is missing from the GQ6 and barely features in the GRAT. Items in the Appreciation Scale do address grateful/appreciative behaviours. However, items that assess behaviours are sometimes answered using a frequency scale and on other occasions answered using the Likert attitude scale which makes the overall evaluation of behaviours confusing and hard to reconcile.

Furthermore, and as highlighted by Lambert and colleagues (2009), these measures appear to reveal a mismatch between the authors' proposed definitions and their subsequent operationalisations of gratitude. Take, for example, the GRAT; Watkins et al. (2003) appear to define gratitude in 'benefit-triggered' terms, referring to Guralnik's (1971, p. 327) definition of gratitude as 'a feeling of thankful appreciation for favours received' (see Lambert et al., 2009). However, the GRAT also includes items which assess a more 'generalised' conception of gratitude, such as 'Oftentimes I have been overwhelmed by the beauty of nature'. The GQ6 similarly mixes up generalised and benefit-triggered definitions and operationalisations.

Adler and Fagley (2005) conceptualise gratitude as a subordinate facet of appreciation and limit gratitude to instances where a third person is inferred, for example, 'I notice the sacrifices that my friends make for me', 'I acknowledge when people have gone out of their way for me'. Interestingly, however, whilst Adler and Fagley (2005) set out to measure something *distinct* from gratitude, Wood and colleagues (2008) demonstrate that gratitude and appreciation are a single-factor personality trait rather than distinct constructs. A general shortcoming with the existing

measures is that none of them is grounded in a thorough conceptual analysis of gratitude, drawing either on the views of laypeople or philosophers, or an integration of the two (see SecondAuthor et al., 2013). For example, Watkins et al. admit that their choice of subscales is based primarily on what they themselves 'feel' (2003, p. 432) about the contours of the concept. Fundamental questions about what gratitude really 'is' (a set of emotions or cognitions or behaviours) are thus elided.

The GQ6, GRAT and Appreciation Scale are well validated and well cited measures which have generated important insights into the positive effects of gratitude experiences. However, we believe that the approach to measuring gratitude needs to be extended to better capture gratitude as a multi-component construct. Indeed, we provide evidence for the necessity of this approach in Studies 1 and 2 below. One of the arguable shortcomings of all three existing measures is that they do not incorporate any measure of conceptual understandings or cognitions about gratitude (including assumptions about when it is due). Individuals can have very different views on what gratitude entails, and experiences of gratitude are highly subjective, depending on those conceptualisations.

To advance the measurement of gratitude, we have drawn explicitly on a conceptual view of gratitude as a moral virtue: an intrinsically valuable trait of character (First & SecondAuthor, 2015). While the instrumental value of gratitude as a moral 'barometer', 'reinforcer' and 'motivator' is well documented (McCullough, Kilpatrick, Emmons, & Larson, 2001), more recent writings have argued for the need to understand gratitude as an intrinsic moral value, constitutive of (rather than simply conducive to) a flourishing life.

Since Aristotle, each virtue is typically seen to comprise a unique set of cognition, perception/recognition, emotion, desire, motivation, behaviour and comportment or style (see ThirdAuthor, 2013).

Apart from its philosophical pedigree, a component view also has a long history in social science. For example, in moral psychology 'neo-Kohlbergians' such as Rest, Narvaez, Bebeau, and Thoma have extended Kohlberg's Cognitive Developmental Theory (Kohlberg, 1969; 1984) to create

the 'Four Component Model' (Thoma, 2006). This model, whilst retaining judgement as an important factor, also includes moral sensitivity, moral motivation and moral character (Bebeau, Rest, & Narvaez, 1999).

While debates continue about what the salient components of moral functioning in general, or virtue in particular, are (Curzer, 2014), at least four components figure in most conceptualisations: the *cognitive, affective, conative/attitudinal* and *behavioural*. On this understanding, to profile an individual's gratitude, for example, we need to know what the individual takes gratitude to be, how it moves the individual as an emotion, what attitudes the individual possesses towards the salience of gratitude, and to what extent gratitude is exhibited in the individual's behaviours (see also Alzola, 2015).

In the following three studies, we demonstrate how conceptions, emotions, attitudes and behaviours pertaining to gratitude are discrete dimensions that can be effectively and reliably captured by our new measure of gratitude; the Multi-Component Gratitude Measure (MCGM). Our use of the word 'attitude' signifies an evaluative mind-set towards gratitude which includes considerations about whether gratitude is an important value and the conditions under which gratitude is deemed appropriate. Our specific use of the term 'attitude' therefore differs from attitude component models in social psychology (Rosenberg & Hovland, 1960) which themselves encompass cognitive, affective and behavioural components.

In Study 1, we illustrate the findings of an exploratory (principal components) factor analysis where, as hypothesised, our Likert scale items separate into emotion, attitude and behaviour subscales of the MCGM. These scale items are informed by a cognitive evaluation of gratitude designed to map individuals' conceptualisations of gratitude.

In Study 2, we demonstrate the clear value of each component of the MCGM with an illustration of how subjective well-being increases linearly with the number of components (of the MCGM) a person possesses. Further, we show the incremental validity of the MCGM and how it

adds to and enhances existing gratitude measures. Finally, we demonstrate the value of having four *discrete* components and how the MCGM enables new research findings to come to light.

Study 1:

The aim of this study was to develop a comprehensive measure of gratitude assessing the four distinct components described above; conceptions/cognitions about gratitude; grateful emotions; attitudes towards gratitude (including motivational aspects and evaluations of its importance); and gratitude-related behaviours.

Method:

Measure development:

The Conceptual Component: This component of the MCGM examines individuals' conceptual understanding of gratitude, for instance whether they believe gratitude *must* involve a valuable benefit or a benefit bestowed with benevolent intentions. The questions in this component derive from a 'vignette questionnaire' previously tested on 781 British participants aged 11 – 65 years (Second & FirstAuthor, 2016). Respondents are presented with vignettes, or scenarios, to examine their understandings of gratitude. The scenarios concern a nomination for an award; each participant first sees a baseline scenario which is subsequently manipulated to examine a series of conceptual controversies (such as whether the benefit must (a) be valuable; (b) be costly to the benefactor; (c) materialise; (d) be bestowed with benevolent intentions; etc.). For a full list of manipulations, see Appendix 1. For each conceptual controversy, participants are asked two questions; whether they would be grateful (answered on a 5-point Likert scale ranging from *1 - Strongly disagree to 5 - Strongly agree,* creating 'Are' scores) and the degree of gratitude they feel (ranging from *0 – Not at all to 100 –Most grateful you could feel*, creating 'Degree' scores). This component provides a profile of respondents' understandings of gratitude. Higher 'Are' and 'Degree' scores refer to a more permissive understanding of when gratitude might be experienced.

The Emotion Component: 42 items were developed to assess grateful emotions; these included items that assessed the strength of grateful feeling; the incidence with which grateful feelings are experienced; the extent of people and things that gratitude is felt for. Response options for items in the emotion and attitude components are based on a 7-point Likert scale ranging from *1 = Strongly disagree to 7 = Strongly agree.*

The Attitude Component: 36 items were developed to assess attitudes towards gratitude. Items referred to attitudes towards recognising valuable benefits; attitudes towards expressing gratitude; evaluations of the importance of gratitude or how much priority gratitude is given; and attitudes towards when gratitude is appropriate.

The Behaviour Component: 41 items were created to examine the amount of gratitude-related behaviours respondents engage in. Importantly, these behaviours extended beyond expressions of gratitude and included noticing benefits received; reflections of what there is to be grateful for; and reminders about being grateful or showing gratitude. This utilises a 7-point Likert scale ranging from *1 = Never to 7 = More than once a day*.

Participants and procedure:

Five hundred and thirty-two UK participants responded to the pool of items in an online questionnaire. They were told that we were interested in examining individuals' ideas, feelings and behaviours regarding gratitude. In return for their participation, participants were entered into a draw to win £250 of Amazon vouchers. Questions were marked as 'required' to avoid missing data and complete, usable responses totalled 477. Respondents were aged 18–88 years with a mean age of 38 years; 68% were female; 85% White-British; 42% Christian; 37% atheist. Of those who identified with a religion, 37% practised their religion. The composition of this sample was broad with a wide age range, varied geographical locations throughout the UK (rural and urban) and a variety of educational backgrounds from no qualifications to postgraduate degrees.

Results and Discussion:

Conceptual items – the 'gratitude profile':

Responses to the conceptual component provided a 'gratitude profile', illustrating the impact of the manipulations on self-reported gratitude scores. As seen in Figure 1, respondents' gratitude experience (evidenced by degree scores) is typically reduced (but not eliminated) in response to non-benevolent intentions (an ulterior motive or malicious intention), while gratitude experience is amplified as the cost to the benefactor increases. The results across participants revealed that some individuals place fewer constraints on when gratitude is due: e.g., degree scores for non-valuable benefits range from 0 to 100 (using the full range of the scale). The gratitude profile (Figure1) supports previous research findings, and for a more detailed exploration of this gratitude profile see Second & FirstAuthor, 2015.

[Insert Figure 1 here]

Emotion, Attitude and Behaviour items:

All 119 items across emotion, attitude and behaviour components were entered into an exploratory (principal component) factor analysis (using oblimin rotation and excluding coefficients below .50[3]). The Kaiser-Meyer-Olkin measure of sampling adequacy was .93 and the Bartlett's test of sphericity (χ^2 (7021) = 33076.86, $p < .001$) indicated that the correlation between items were large enough to run a principal components analysis (PCA). The initial PCA extracted 9 factors with Eigenvalues over 2.0 which accounted for 48% of the variance. The scree plot demonstrated distinct inflexions at both 5 and 7 factors; when extracting 7 factors, the 7th factor contained only one item leaving 6 discrete factors. When extracting 5 factors, the analysis amalgamated two factors that had previously been separate; 'Rituals/Noticing Benefits' and 'Attitudes to Gratitude'. There were good theoretical grounds to argue that these factors were indeed distinct from one another as items in the former category pertain to actions and gratitude-related behaviours (e.g., 'I reflect on all the good things I

have'), whilst items in the latter group were evaluative items addressing the perceived importance of gratitude (e.g., 'I believe gratitude is an important value to have'). We, therefore, retained the 6 factor structure. The loadings for this 6-factor structure (with coefficients over .50 from the pattern matrix) can be seen in Table 1, giving way to a 29-item scale. These 6 factors, accumulatively, were able to account for 42% of the variance.

The 6 factors retained (see Table 1 and 2) were (1) Feelings of gratitude; (2) Attitudes of appropriateness (of gratitude); (3) Behavioural shortcomings; (4) Rituals/Noticing benefits; (5) Expressions of gratitude; and (6) Attitudes to gratitude. These factors fitted nicely with our assumption of distinct dimensions of emotions, attitude and behaviour; factor 1 refers to emotions; 2 and 6 refer to attitudes; and 3, 4 and 5 pertain to behaviour. Theoretically, the results of this PCA suggest a hierarchical structure with 29 items on the lowest level; six factors at the second level (two behavioural; two attitudinal; and one emotional); and three components at the highest level (emotional, attitudinal and behavioural, but note that the conceptual component whilst not appropriate for inclusion in the PCA would constitute another component of gratitude).

The reliability of all sub-scales was tested (using Cronbach's alpha) and all achieved alpha scores over .70 (see Table 1).

The mean scores for each component in this population[4] were as follows: Conceptual component –mean 'are' score = 24.85 (SD = 3.40); mean 'degree' score = 381.80 (SD = 108.47); Emotion component – mean = 35.00 (SD = 5.28); Attitude component – mean = 58.38 (SD = 6.84); Behaviour component – mean = 63.13 (SD = 9.85).

[Insert Table 1].

The results from the exploratory factor analysis supported our conception of gratitude as comprising multiple components and substantiated our claim that these components are affective, attitudinal and behavioural in nature. The distinct conceptual component (Figure 1) generates a 'profile' of

gratitude experience offering an insight into how this construct is conceived; we return to this issue later.

Study 2:

The aim of this study was to validate the refined measure (of 29 items constituting emotion, attitude or behaviour questions plus the fourteen cognitive items (7 'are' and 7 'degree'). We used confirmatory factor analysis (CFA) to test its structure and examined its construct and incremental validity alongside the three existing gratitude/appreciation measures. Moreover, we aimed to explore whether certain combinations of components would result in particular patterns of subjective well-being. That is, would an individual who scores highly on all four components of the MCGM report a different level of well-being to those that score high on only one, two or three components?

We hypothesised that the MCGM, given its unique conception and strong theoretical basis, would offer something the existing measures cannot currently offer. We also hoped to demonstrate that the most elevated levels of well-being would relate to higher scores on all four components of the MCGM.

Method:

Participants and procedure:

A large sample of 1599 participants from across the UK took part in this study. Questions were marked as 'required' so all 1599 participants had full response sets. 52% were female; ages 18–83 years (mean = 51). 56% of participants identified as Christian; 23% atheist. Of those who identified with a religion, 21% practised their religion. 23% of the sample was single and 67% married; 58% had dependants and 41% did not. In terms of employment, 28% of respondents were in intermediate managerial positions; 22% were in supervisory or junior managerial positions or identified as administrative or professional; 22% were pensioners. 80% of respondents were from England; 6%

from Scotland; 3.3% Wales; and 1.2% Northern Ireland. The composition of this sample was carefully selected to reflect UK population estimates (see Appendix 2).

The measure was completed as an online survey and participants were recruited via a crowd-sourcing website and paid £2.00. As in Study 1, participants were told that we were interested in examining individuals' thoughts, feelings and behaviours pertaining to gratitude. Alongside the MCGM, participants completed the GQ6, GRAT and Appreciation scale and three measures of (subjective) well-being which have previously demonstrated as correlates of gratitude; Satisfaction with Life scale (or SWL, Diener *et al.*, 1985, α = .87); Subjective Happiness (SH, Lyubomirsky & Lepper, 1999, α = .79 - .94); and positive affect (as measured by the PANAS, Watson, Clark, & Tellegen, 1988, α > .80).[5] The presentation order of the MCGM, GQ6, GRAT, Appreciation scale, and three well-being scales was randomised for each participant. The online survey took an average of 31 minutes to complete.

Results:

CFA:

In Study 1, we discussed the results of the PCA and suggested a hierarchical structure ordered in terms of items at the lowest level; MCGM subscales as first-order factors; and MCGM components at as second-order factors. We tested this structure using confirmatory factor analysis performed with AMOS software (Byrne, 2013) usingmaximum likelihood estimations.

Each item had a non-zero loading on the first-order latent variable it was designed to measure; for instance there were four behaviour items that loaded onto the first-order latent variable (or MCGM subscale) 'Expressing gratitude'.

There were two second-order factors in this model: 'Behaviours' and 'Attitudes'. The three first-order factors corresponding to behaviour subscales loaded onto the second-order factor 'Behaviour'. The two first-order factors that represented attitude subscales loaded onto the second-

order factor 'Attitude'. Because the emotion component comprises only one subscale ('feelings of gratitude') it did not make sense to model this as a second-order factor. Therefore, in this case, emotion was modelled as a first-order factor but presumed to co-vary with the two second-order factors of 'Behaviour' and 'Attitudes' (as they all correspond to a distinct component of gratitude experience and have been shown to correlate in Study 1).

Error terms were presumed to be uncorrelated and covariation among six first-order factors to be explained by their regression on one first-order factor (emotion) and two second-order factors (behaviours and attitudes).

Goodness of fit was evaluated using a number of indices including RMSEA which takes into consideration the parsimony of the model; and CFI/TLI, or comparative fit indices which compare the specified model to more restricted alternative models (see Brown, 2015). Hu and Bentler (1999) suggest there is a reasonably good fit between the model and the data when RMSEA values are near to .06 or below and CFI and TLI values are over .95. Following these criteria, the values of these three indices indicated that our model is a good fit and describes our data well (RMSEA = .041; CFI =.958; TLI = .951). MacCullum et al. (1996) argue that further support for the model would be evidenced if the upper limit of the 90% confidence interval (CI) for RMSEA fit is below the RMSEA cut off values; even if we take the more conservative cut off of .06 the upper CI falls below this value here (90% CI = .039 - .043).

At the local level, there was one first-order factor ('behavioural shortcomings') that did not load well on its second-order factor (behaviour). We believe this is due to the fact that this factor contains negatively keyed items (e.g., 'I overlook how much I have to be grateful for'). Previous research has demonstrated how negatively keyed items can show up as distinct factors but do not reflect distinct constructs (Spector et al., 1997). We view the behavioural shortcomings subscale as a crucial way of ensuring critical reflection on gratitude behaviours. As Spector et al. (1997, p .676) state "extreme items are necessary when one intends to distinguish individuals who are extreme on the construct from those who are moderate." This becomes more salient when exploring a socially

desirable construct like gratitude. We also view behavioural shortcomings as, theoretically, comprising a part of an individual's behaviour and not distinct from it. However, to ensure that this particular subscale did not compromise the fit of the model, we re-ran this model after excluding behavioural shortcomings. Importantly, there was no difference in fit with the same CFI and RMSEA values obtained.

Construct Validity:

The MCGM emotion, attitude and behaviour components correlated positively and significantly with existing measures of gratitude and the well-being scales (see Table 2 for correlations, means and standard deviations for Study 2 measures). Interestingly, there was a particularly high correlation between the emotion component of the MCGM and the GQ6, which, we suggest, only taps feelings of gratitude ($r = .709$, $p < .001$).

Weaker correlations between existing gratitude scales and other components of the MCGM begin to indicate how there are aspects of the MCGM that are distinct from the scales currently available (e.g., the behavioural shortcomings subscale has a weak correlation of < .18 with all existing gratitude measures). We return to this issue in the test of incremental validity.

[Insert Table 2 here]

Exploration of 'Person Types' and their Relation to Subjective Well-Being:

The goal here was to show that well-being is elevated when a particular pattern is evinced across the components. Theoretically, we would hypothesise that individuals with a more permissive conception of when gratitude should be experienced, alongside above average levels of grateful emotions, attitudes and behaviour, would show the highest levels of well-being; i.e., respondents

that are 'high' on all four components of the MCGM. In turn, those that are above average on none of the components of the MCGM should show the lowest levels of well-being.

Person Types:

We tested this hypothesis by creating a series of 'person types' and examining these person types in relation to the measures of well-being (satisfaction with life, subjective happiness and positive affect). Five different 'person types' were created depending on participants' scores across the four components of the MCGM. Participants could either be above average or below average on each of the components (based on their mean conceptual, emotion, attitude and behaviour scores)[6]. This created five different person types, ranging from those that are above average on all four components (these individuals might be thought of as abundantly grateful) to those who are above average on none of the four components (and perhaps viewed as less grateful).

Having created person types, we explored the levels of subjective well-being across the five different types. To do this, we conducted a between-subject MANOVA with person type as the independent variable and satisfaction with life, subjective happiness and positive affect as the dependent variables.

As shown in Table 3, our hypothesis was confirmed, with all three measures of well-being increasing alongside the number of components that individuals scored above average on (see Figure 2 for a clear illustration of this linear relationship). This comparison of person types demonstrates clearly how all four components of the MCGM relate to individuals' well-being and, consequently, the importance of measuring all four components when attempting to gauge levels of gratitude.

[Insert Table 3 here].

[Insert Figure 2 here]

Combination Type:

When considering person types in more detail, the question arises as to whether the particular combination of components makes a difference to well-being. That is, does being above average on conceptual and behaviour components look any different to being above average on emotion and behaviour components? Therefore, another necessary step involved categorizing people based on the *specific* combination of components that they are 'above average' on. This leads to fifteen different combination types (four combinations for the 3-component person type; six for the 2-component person type; four for the 1-component person type; and one for the 4-component person type, see Figure 3).

By conducting a between-subject MANOVA, we observed that the particular component(s) that individuals are above average on does have an effect on well-being. When looking at individuals who are above average on one component we noticed that the emotion and behaviour components are associated with higher well-being scores than the attitude and conceptual components. The influence of emotion and behaviour components were similarly evident in the 2-component and 3-component person types; the highest levels of positive affect were found in those that exhibit both emotion and behaviour components together.

[Insert Figure 3 here].

Demographic comparisons:

Previous research has demonstrated that self-reported gratitude tends to be higher for females than males (e.g., Wood et al., 2008) and for religious over non-religious individuals (e.g., McCullough,

Tsang, & Emmons, 2004). Therefore, we also explored whether 'person type' differed across gender, age and practise religion. A between-subjects ANOVA was conducted with gender (female, male); age group (18-30 years, 31 – 40, 41 – 50, 51 -60, 61 -70 and over 70 years); and practise religion (yes, no) as the fixed variables and person type as the outcome variable. This ANOVA revealed a significant main effect of gender $F (1, 1489) = 9.45$, $p < .01$, $\eta^2 = .006$), age group ($F (5, 1489) = 3.05$, $p < .05$, $\eta^2 = .010$) and practise religion ($F (1, 1489) = 42.96$, $p < .001$, $\eta^2 = .028$). There were no interactions between variables.

Females tended to score above average on more components of the MCGM than males (M = 2.42, SE = .063 and M = 2.09, SE = .089 respectively). Over 70 year olds scored above average on more MCGM components than all other age groups (M = 2.59, SE = .080), and statistically higher than 31-40 year olds (mean difference (MD) = .449, $p < .001$); 41-50 year olds (MD= .612, $p < .01$) and 51-60 year olds (MD = .565, SE = .148, $p < .01$). When comparing individuals who practised their religion with those that did not, we observed that the former group is above average on more components of the MCGM (M = 2.61, SE = .095; M = 1.90, SE = .053 respectively, $p < .001$).

We conducted a multivariate analysis of variance to examine group differences across all dependent variables tested within Study 2. The fixed variables were gender; age-group (as above); religion (Christianity or atheism[7]); the practise of religion (as above); relationship status (single; married[8]); dependants (individuals with dependants and those without); and employment type (as categorised in the demographics section). The dependent variables explored were the four components of the MCGM; GQ6 scores, GRAT scores, responses to the Appreciation Scale; SWL scores; SH scores and positive affect. Notable findings here were in terms of gender and religion. Females rated themselves more highly on the emotion component of the MCGM ($F (1, 1597) = 4.99$; $p < .05$, $\eta^2 = .006$); the attitude component ($F (1, 1597) = 17.71$; $p < .001$, $\eta^2 = .023$) and the behaviour component ($F (1, 1597) = 14.75$; $p < .001$, $\eta^2 = .019$); as well as the GQ6 ($F (1, 1597) = 10.77$; $p < .01$, $\eta^2 = .014$); the GRAT ($F (1, 1597) = 9.14$; $p < .01$, $\eta^2 = .012$); and the Appreciation scale ($F (1, 1597) = 11.26$; $p < .01$, $\eta^2 = .014$).

When comparing Christians and atheists, those who identify as Christian report significantly higher ratings of gratitude in the GQ6 ($F (1, 1429) = 9.20$; $p < .01$, $\eta^2 = .012$); GRAT ($F (1, 1429) = 6.47$; $p < .05$, $\eta^2 = .008$); and Appreciation scale ($F (1, 1429) = 10.66$; $p < .01$, $\eta^2 = .014$). In terms of the MCGM, Christians rate themselves significantly higher in grateful emotions than their non-religious counterparts ($F (1, 1429) = 14.12$; $p < .001$, $\eta^2 = .018$). However, crucially, we notice *no difference* between the two groups in terms of attitudes towards gratitude or gratitude-related behaviours ($F (1, 1429) = 1.39$, $p = .24$, $\eta^2 = .002$; and $F (1, 1429) = 2.37$, $p =. 12$, $\eta^2 = .003$ respectively). This demonstrates the possibility of differential scoring on the separate gratitude components of the MCGM, which enables a more sophisticated measure of where differences between religious and non-religious participants lie. Correlational research has tended to show that trait gratitude (measured with the GQ6) is correlated with religiousness (McCullough et al., 2002). More recently, however, Tsang, Schulwitz, and Carlisle's (2011) experimental study showed there to be no difference in gratitude behaviours between religious and non-religious participants, a finding echoed in the comparisons between Christians and atheists on the behaviour and attitude components of the MCGM.

The Value of the Conceptual Component:

In a further illustration of how the conceptual component contributes to assessments of gratitude and informs the scores of the other components, we conducted a one-way MANOVA and post-hoc Bonferroni tests with Low/Medium/High Are and Degree scores as the predictor variables[9] and emotion, attitude and behaviour scores as the outcome variables. The results demonstrated that more permissive understandings and experiences of gratitude, indicated by higher conceptual Are and Degree scores, are related to higher emotion, attitude and behaviour scores (and higher GQ6, GRAT, and Appreciation scores) (see Appendix 4). This finding therefore demonstrates that an individual's more or less permissive construal of gratitude could impact on their reported grateful feelings, attitudes and behaviours.

It is important to signpost here the utility of the gratitude profile as described briefly in Study 1. The profile is designed to explore the conceptual contours of gratitude and each of these contours could be separately examined to explore its impact on gratitude experience. We have illustrated this in detail in previous publications, taking a normative approach (Second & FirstAuthor, 2016) and in a developmental, cross-cultural exploration (First & SecondAuthor, forthcoming, 2017). Unfortunately, there is insufficient space to show this here. What the profile *can* show you are the factors that influence gratitude and whether this differs across individuals.

For example, we have shown that adults tend to recognise, and be impacted by, mixed emotions like indebtedness to a greater degree than adolescents (Second& FirstAuthor, 2016). The important point here is that conceptions of gratitude feed into the overall experience of gratitude and that this is a salient part of the measure (as clearly evident in both the MANOVA and person type analyses above).

Incremental Validity of the MCGM:

Having shown that the MCGM has construct validity and that each component influences well-being, we carried out a more traditional, yet conservative, test of incremental validity to explore whether gratitude predicts unique variance in the three well-being measures after controlling for the effects of personality (Big Five) and existing gratitude measures. In essence, we were examining whether the MCGM, in the traditional sense of explained variance, can offer something above and beyond what is already offered by existing gratitude measures. To test incremental validity, we conducted a three-step hierarchical multiple regression (following a similar procedure to that outlined by Wood and colleagues, 2008). In the first step of the regression, we entered age, gender, religion and whether participants practised their religion. In the second step of the regression, we entered the Big Five domains (as measured by the BFI-10, Rammstedt & John, 2007). Previous research suggests that the Big Five account for a significant amount of variance in well-being measures (see McCullough et al., 2002; Wood et al., 2008).

In the third step, we entered the existing gratitude scales (GQ6, GRAT and Appreciation Scale); and in the final step we entered the four components of the MCGM (Conceptual component ('Are' and 'Degree' scores); Emotion component; Attitude component and Behaviour component). If entering the MCGM had a significant impact on the regression model, we could be confident that the MCGM is offering something new.

This four-step hierarchical regression was conducted on three different outcome variables; satisfaction with life; subjective happiness and positive affect, to assess affective and cognitive well-being as well as global subjective happiness.

When entering the demographic variables, a significant model emerged for each of the three well-being variables (see Appendix 3). In the next step of entering the Big Five, a significant model also emerged, demonstrating that the Big Five could account for 11% of variance in satisfaction with life[10], 31% of variance in subjective happiness and 37% of variance in positive affect. In the third step, when entering the three existing gratitude measures, a significant model emerged again; the existing measures of gratitude accounted for an additional 27% of variance in SWL, 15% of SH and 9% of positive affect. Importantly, in the final step, entering the MCGM components also led to a significant model for all three well-being measures. The MCGM accounted for an additional 2.3% of variance in SWL above what can be predicted by the Big Five and the three existing gratitude measures model (R^2 = .43; F (17, 820) = 36.02; p < .001); an additional 1.6% of variance in SH (R^2 = .55; F (17, 820) = 58.78; p < .001) and 1.5% of variance in positive affect (R^2 = .48; F (17, 820) = 44.81; p < .001, see Appendix 3). Please note that this is a very conservative measure of the MCGM's value as this demonstrates what the measure can offer *over and above* personality and *all* of the existing measures of gratitude combined (without controlling for these variables the MCGM accounts for 22.5% of SWL; 30.2% of SH and 22% of positive affect).[11] Thus, the MCGM makes a unique contribution to existing scales and predicts additional variance in well-being beyond existing measures.

Discussion:

By identifying different 'person types', we demonstrated how different components of gratitude coexist within an individual. Moreover, we have illustrated the importance of every component of the MCGM through their relation to well-being; scoring below average on all four components is related to the lowest levels of well-being (assessed by *three* well-being scales), this increases in a linear fashion culminating with those individuals who score above average on all four components who report the most elevated levels of well-being.

The three tests of incremental validity demonstrate how the MCGM offers something not currently measured by existing gratitude scales. In particular, the stage of the MCGM that appears to add most value in the regression model is the behaviour stage; when predicting satisfaction with life and subjective happiness, the largest t- and p-values emerged for the Behaviour component (see Appendix 3). This further illustrates the hazards of measuring gratitude only via its emotional manifestations.

We have emphasised the importance of the conceptual component which is evident in the analysis of person types where it significantly impacted upon all three well-being measures. We also showed that more permissive understandings of gratitude appear to lead to higher scores on all other components of the MCGM and scores on existing gratitude scales.

General Discussion:

The MCGM was designed to examine the construct of gratitude as a multi-component virtue. One of the aims of this paper was to demonstrate that it is psychometrically robust, reliable and valid. In Study 1, the distinct dimensions of gratitude that this measure was developed to examine were supported by a principal components factor analysis that separated and condensed our pool of items into 6 discrete factors and three components; the structure of this measure was confirmed with a CFA in Study 2. These analyses support the theoretical conception of gratitude, as a moral virtue, comprising distinct emotions, attitudes and behaviours.

This measure also offers a means of examining conceptions of gratitude. The resulting 'gratitude profile' offers an important insight into participants' understandings of gratitude, which is specific to the individual. Depending on the design and purpose of their work, researchers could explore the dimensions of this profile in more depth (see Second & FirstAuthor, 2016). However, whether gratitude is seen permissively with a 'wide-angle' lens appears to impact on an individual's grateful feelings, attitudes and behaviours. The MCGM permits an assessment of these latent influences to be made manifest. Given the strong correlation between conceptual 'are' and conceptual 'degree' responses (r = .67**), we recommend the use of only degree questions in future applications of the MCGM, for reasons of parsimony.

In Study 2, the value of the MCGM was tested by creating 'person types' depending on whether individuals were 'above average' or 'below average' on each of the MCGM components. This analysis illustrated how the different components of the MCGM coexist within an individual and how each contributes toward well-being. These findings should be of great pragmatic interest to researchers seeking to measure gratitude as comprehensively as possible.

In contrast to the GQ6, GRAT or Appreciation scale, the MCGM does not provide one simple 'gratitude score' though it does offer a richer all-round picture, particularly by means of specific 'person types'.

Currently, the MCGM is the only measure to offer an insight into the thought processes undergirding participants' conceptual understanding of gratitude. Because extant questionnaires take this representation for granted, presuming participants share the same underlying conception of gratitude as the researchers, the MCGM tells us something about gratitude that has never been measured before. Depending on the kind of research envisaged, it may not always be possible or practicable to use the conceptual component, and so we propose that the subscales be used independently or in combination as appropriate. The attitudinal and behavioural components, which still represent relatively uncharted dimensions of gratitude in existing measures, could also be used alongside the shorter and well-established index of grateful feeling, the GQ6.

Study 2 demonstrates for the virtue of gratitude, in particular, the importance of tapping emotions and behaviours. Not only does this advance the theoretical understanding of this virtue, it also offers a practical suggestion for future researchers: studies aiming to measure gratitude that do not, at the very least, gauge these two aspects of gratitude will miss out on vital information (especially those studies exploring the link between gratitude and well-being).

Future work involving the MCGM will aim to establish its temporal stability, using assessments of test-re-test reliability. It will also be important to assess the degree to which all components of the questionnaire predict actual behaviour in experimental studies.

Dimensions of subjective well-being are suited to the exploration of gratitude given the strong positive correlation between the two constructs; however, this is only one of a host of possible outcome variables that could be examined. As noted, gratitude has been linked to building and maintaining relationships and prosocial behaviours (Algoe et al., 2008; Bartlett et al., 2006; 2012); a fruitful avenue of research would be to examine whether the observed value of the MCGM is specifically tied to well-being or whether these results are generalizable to other positive benefits such as social functioning. Similarly, given current interest in positive and character education, links between gratitude and educational benefits (academic attainment and satisfaction with school experience) could also be examined using the MCGM, creating another valuable line of inquiry (Froh et al., 2008; 2011).

Conclusions:

Our aims here were three-fold: to (1) highlight how conceptualisations of a construct contribute to the measurement of a (moral) construct; (2) demonstrate how measures of moral virtue should encompass multiple components –*cognitive, affective, conative/attitudinal* and *behavioural*; and (3) provide a new measure of gratitude. By combining conceptual analysis with scale development, we have shown the MCGM to be an internally reliable and valid measure of four components of gratitude: (a) conceptions (or understandings) of gratitude; (b) grateful emotions; (c)

attitudes towards gratitude; and (d) gratitude-related behaviours. Our analysis of 'person types' demonstrates the value of assessing each of the four MCGM components and how all components impact upon an individual's well-being.

The MCGM offers a number of features that make significant improvements to existing measures, both from theoretical and practical standpoints.

This paper has explored a multi-component approach to one particular moral virtue, gratitude. We have argued throughout that in order to assess virtue we must measure its cognitive, affective, attitudinal and behavioural aspects; this has been clearly evidenced in the case of gratitude. It is our hope that this conception of virtue measurement will be applied to other moral constructs in the future.

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Notes:

1. *The GRAT-short form containing 16 items (Thomas and Watkins, 2003) is utilised in the empirical studies presented in this paper.*
2. *Item analysis (with correlations over .50) produced a short form of the Appreciation scale containing 18 items and displaying strong internal consistency (Cronbach's alpha = .91). We utilised the short form of the Appreciation Scale alongside the 'Gratitude' subscale in the studies presented here.*
3. *Please note that a coefficient of .50 was chosen in order to reduce the number of items piloted to a manageable number. This is particularly important in this case as it is competing with existing measures that are shorter in length.*
4. *The mean scores relate to the six factors as grouped into emotion, attitude and behaviour components. Here, the emotion score could range from 6 to 42; the attitude score could range from 10 to 70; and the behaviour score could range from 13 to 91. The conceptual 'Are' score could range from 7 –35 and the conceptual 'degree' score could range from 0 – 700.*
5. *It is important to note here that well-being is only one of a set of constructs that could have been used to validate the MCGM. These scales have been chosen due to their well-established links to gratitude but other alternatives are discussed as part of the future directions in the General Discussion. Scale reliability (as measured in this study) can be seen in Table 2.*
6. *The conceptual score was a standardized z-score calculated using mean 'are' scores, 'degree' scores and 'triadic/dyadic degree' scores which related to whether participants endorsed a dyadic and/or triadic view of gratitude, see introduction. The decision was made to separate the data based on the mean rather than the median. When calculating the median the separation of 'above average' and 'below average' scores shifted by one integer for the emotion and attitude components. However, the*

mean resulted in greater similarity in sample size across the five person types which is preferable for the analysis of variance.

7. *56% of our sample was Christian and 23% atheist; accounting for 79% of the total sample; thus these two groups were compared to examine the effect of religion.*
8. *80% of our sample was made up of single (23%) and married (67%) individuals.*
9. *Participants' responses to 'Are' and 'Degree' questions across all manipulations were added together to form an 'Are total' and 'Degree total' per participant; the sample was subsequently split into three equal groups to make low, medium and high groupings for the ANOVA.*
10. *You may note that the amount of variance accounted for by the Big Five here is smaller than that noted by Wood and colleagues (2008). This may be due to the use of different Big Five instruments; Wood and colleagues used the full 240-item Revised NEO Personality Inventory (NEO-PI-R, Costa & McCrae, 1992) whilst our respondents completed a short Big Five instrument, the BFI-10 (Rammstedt & John, 2007).*
11. *Hunsley and Meyer (2003) note that interpretation of how meaningful it is to have an incremental validity variable of a particular size is contentious (p. 450), and produced guidelines to assist in this endeavour. They argue that scores of r = .15 to .20 on the third step should be deemed 'a reasonable contribution to the existing equation' (p. 451), a figure cited by Wood et al (2008, p. 446).*

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First & SecondAuthor (2015). Removed.

First, Second, & ThirdAuthor (2014). Removed

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Table 1. Factor Loadings, Eigenvalues and Explained Variance from the Principal Components Analysis (from the Pattern Matrix when six factors are extracted; Oblimin Rotation).

Factor/Scale Name	**Factor Loadings**						**Item**
	1	**2**	**3**	**4**	**5**	**6**	
FEELINGS OF GRATITUDE *[E]*	**-0.813**					-0.144	There are so many people that I feel grateful towards
FEELINGS OF GRATITUDE *[E]*	**-0.880**				0.104		There are so many people that I feel grateful for
FEELINGS OF GRATITUDE *[E]*	**-0.730**					0.136	I feel appreciative of the support of many people in my life's journey
FEELINGS OF GRATITUDE *[E]*	**-0.707**					0.147	I feel grateful for the people in my life
FEELINGS OF GRATITUDE *[E]*	**-0.643**		0.106	0.176			Thinking about all I have to be grateful for makes me feel happy
FEELINGS OF GRATITUDE *[E]*	**-0.708**						There are many things that I am grateful for
ATTITUDES TO APPROPRIATENESS *[A]*		**0.722**			-0.145	0.153	Gratitude should be reserved for when someone does not want anything in return (*)
ATTITUDES TO APPROPRIATENESS *[A]*		**0.782**					Gratitude should be reserved for when someone intends to benefit you (*)
ATTITUDES TO APPROPRIATENESS *[A]*		**0.755**					I only show gratitude to people who have benefitted me without wanting anything in return (*)
ATTITUDES TO APPROPRIATENESS *[A]*		**0.735**			-0.133	0.112	I only show gratitude for the things that are not already due to me/are mine by right (*)
ATTITUDES TO APPROPRIATENESS *[A]*		**0.761**					I only show gratitude towards people who clearly intended to benefit me (*)
ATTITUDES TO APPROPRIATENESS *[A]*	-0.107	**0.651**	0.103		0.134		I only feel grateful when the benefit is of genuine value to me
BEHAVIOURAL SHORTCOMINGS *[B]*	0.130		**0.745**			0.171	I forget to let others know how much I appreciate them (*)
BEHAVIOURAL SHORTCOMINGS *[B]*			**0.840**				I forget to reflect on the things that I am grateful for (*)
BEHAVIOURAL SHORTCOMINGS *[B]*			**0.818**				I overlook how much I have to be grateful for (*)
BEHAVIOURAL SHORTCOMINGS *[B]*			**0.797**				I forget to remind myself that there is so much in life to be thankful for (*)
RITUALS/NOTICING BENEFITS *[B]*				**0.860**			I stop to recognize all the good things I have in my life
RITUALS/NOTICING BENEFITS *[B]*				**0.866**			I recognise how many things I have to be grateful for
RITUALS/NOTICING BENEFITS *[B]*				**0.878**			I stop and think about all the things I am grateful for
RITUALS/NOTICING BENEFITS *[B]*				**0.851**			I reflect on all the good things I have
RITUALS/NOTICING BENEFITS *[B]*				**0.835**			I remind myself of the benefits I have received
EXPRESSIONS (OF GRATITUDE) *[B]*					**0.756**		I make it a priority to thank others
EXPRESSIONS (OF GRATITUDE) *[B]*	-0.108		-0.102		**0.690**	0.156	I express thanks to those who help me
EXPRESSIONS (OF GRATITUDE) *[B]*	-0.171				**0.622**	0.102	I notice the people who are kind to me
EXPRESSIONS (OF GRATITUDE) *[B]*					**0.802**		I go out of my way to thank others for their help
ATTITUDE OF GRATITUDE *[A]*		0.122				**0.709**	I don't think it is necessary to show your gratitude to others (*)
ATTITUDE OF GRATITUDE *[A]*						**0.690**	I believe it is important to thank people sincerely for the help they give me
ATTITUDE OF GRATITUDE *[A]*						**0.673**	I believe gratitude is an important value to have
ATTITUDE OF GRATITUDE *[A]*						**0.788**	It is important to acknowledge the kindness of other people
Eigenvalue	8.10	3.08	2.52	1.89	1.77	1.30	
% of variance	27.94	10.60	8.68	6.52	6.09	4.47	
Reliability Score (Cronbach's α)	0.87	0.85	0.82	0.92	0.79	0.74	

Notes:

[E]denotes an emotion item; [A] = Attitude item; [B] = Behaviour item

(*) = Reverse Scored Item.

Table 2: Correlation matrix demonstrating the relationship between all stages of the MCGM; the existing gratitude/appreciation scales and the well-being scales.

	Conceptual ARE	Conceptual DEGREE	Emotion Stage	Attitude Stage	Behaviour Stage	GQ6	GRAT	Appreciation Scale	SH	SWL	(Pos) PANAS
Conceptual ARE		.672**	.234**	.224**	.162**	.188**	.166**	.188**	.123**	.094**	.162**
Conceptual DEGREE			.246**	.201**	.216**	.195**	.181**	.233**	.163**	.135**	.176**
Emotion Stage				.428**	.482**	.709**	.612**	.514**	.472**	.435**	.408**
Attitude Stage					.366**	.452**	.437**	.280**	.262**	.178**	.195**
Behaviour Stage						.552**	.512**	.681**	.475**	.370**	.395**
GQ6							.766**	.578**	.567**	.546**	.487**
GRAT								.582**	.573**	.592**	.450**
Appreciation Scale									.389**	.356**	.347**
SH										.616**	.589**
SWL											.479**
(Pos) PANAS											
Scale Reliability as recorded in Study 2 (Cronbach's alpha)	.537	.790	.893	.862	.834	.823	.888	.897	.886	.891	.860
Study 2 Mean (SD)	24.45 (3.62)	414.59 (111.24)	33.96 (5.84)	56.10 (8.14)	62.50 (11.86)	5.50 (.95)	108 (17.67)	78.54 (17.93)	23.88 (6.27)	4.98 (1.22)	34.45 (6.36)

*Pearson Correlation, N = 1599, ** = p < .01.*

Table 3. Mean scores for each well-being scale across person types. A comparison of the mean difference in well-being between each person type is shown alongside the associated significance value.

Person Type	*Satisfaction with Life score* ***(Scores can range from 5 – 35)***				*Subjective Happiness score* ***(1-7)***				*Positive Affect score* ***(10-50)***				*N*
	Mean	SD	Comparison	Sig.	Mean	SD		Sig.	Mean	SD		Sig.	
Above average on 0 components	21.18	6.28	Above average on 0 vs. 1	NS	4.27	1.10	0 – 1	p <.05	31.22	5.64	0 – 1	NS	262
Above average on 1 component	21.92	6.19	Above average on 1 vs. 2	p <.001	4.56	1.10	1 – 2	p <.001	32.34	6.26	1 – 2	p <.001	356
Above average on 2 components	23.73	6.14	Above average on 2 vs. 3	p <.001	4.94	1.26	2 – 3	p <.001	34.45	6.26	2 – 3	p <.001	373
Above average on 3 components	25.69	5.42	Above average on 3 vs. 4	p <.05	5.40	1.07	3 – 4	p <.01	36.28	5.60	3 – 4	p <.01	341
Above average on 4 components	27.06	5.42			5.74	0.99			38.07	5.58			267

Figure 1: Mean 'degree' scores across the seven conceptual manipulations that make up the conceptual component. This provides a 'gratitude profile' describing respondents' conceptions of when gratitude is due and, thus, their self-projected gratitude experience. Error bars denote standard error values.

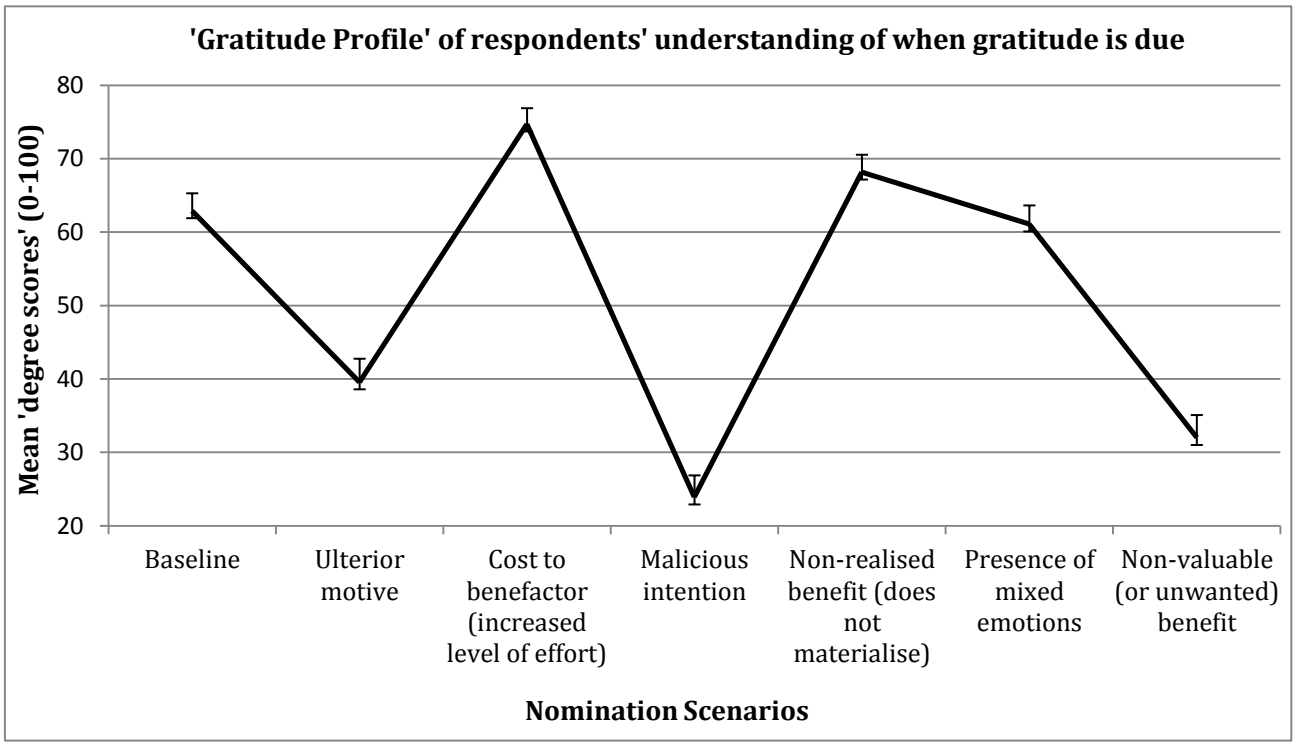


Figure 2. Illustration of the linear relationship between number of components of the MCGM that individuals endorse and their subjective well-being (as measured by Subjective Happiness Scale).

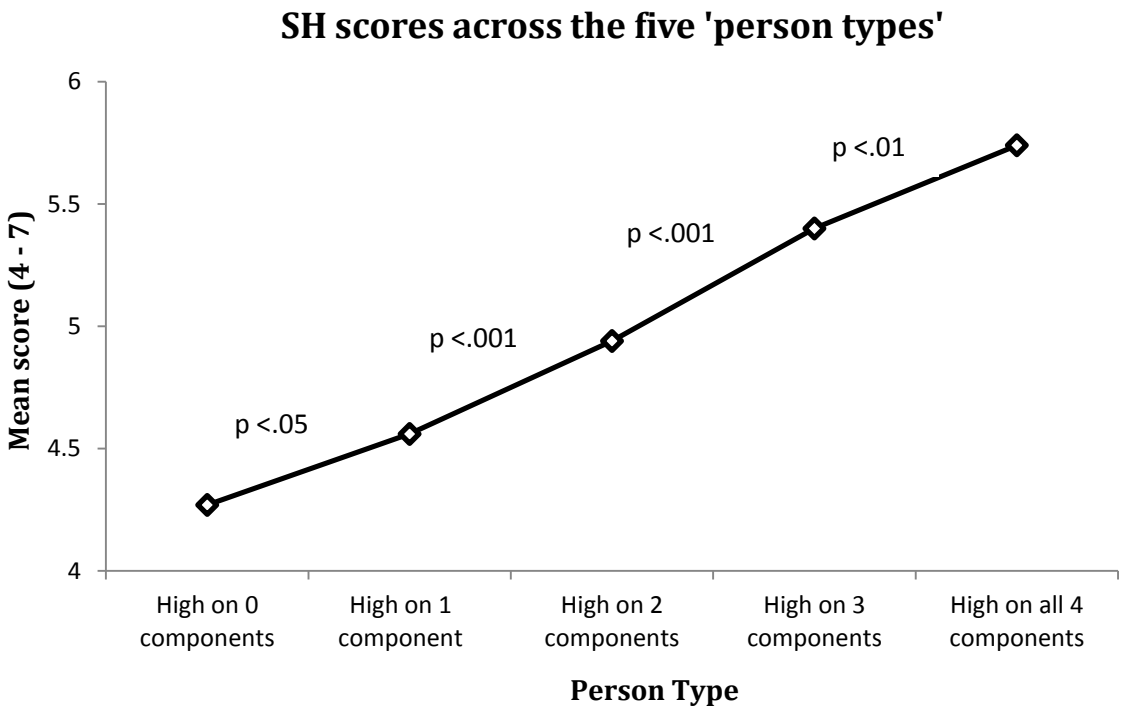
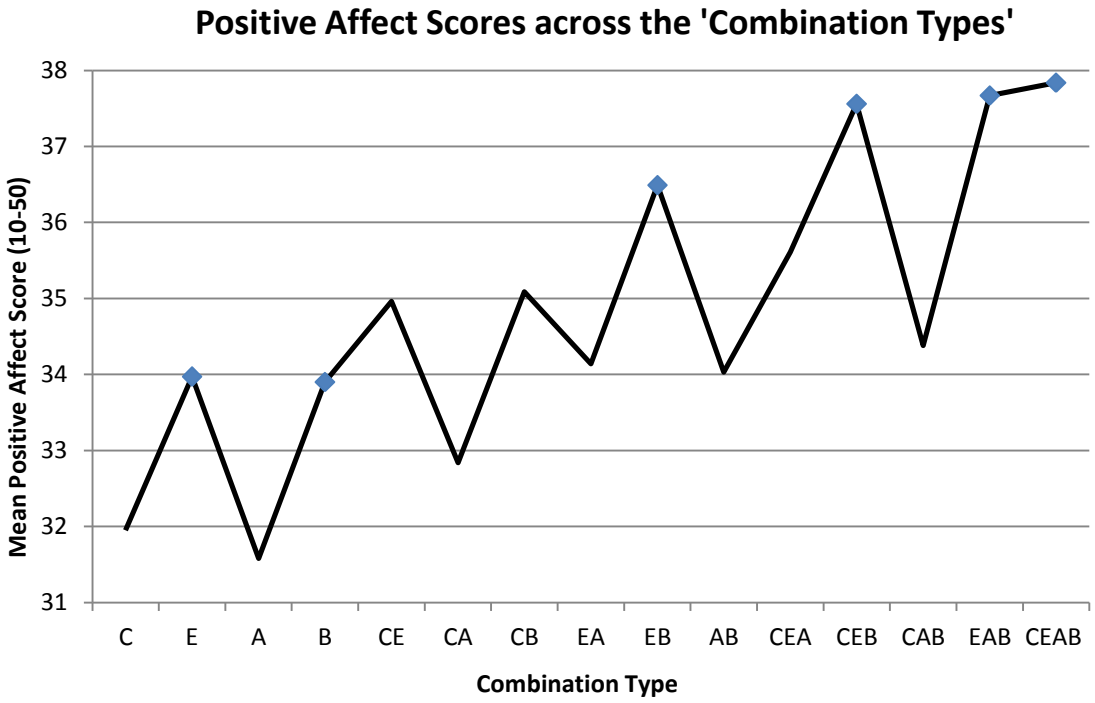


Figure 3. Illustration of the relationship between positive affect and the fifteen different combination types. The markers signpost the points where the emotion and behaviour components make a visible impact on well-being scores.



Note:

C= 'Above average' on conceptual component
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CE = 'Above average' on conceptual and emotion components
CA = Conceptual and attitude
CB = Conceptual and behaviour
EA = Emotion and attitude
EB = Emotion and behaviour
AB = Attitude and behaviour
CEA = 'Above average' on conceptual, emotions and attitude components
CEB = Conceptual, emotion and behaviour
CAB = Conceptual, attitude and behaviour
EAB = Emotion, attitude and behaviour
CEAB = 'Above average' on all four components of the MCGM

Table(s)

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Figure(s)

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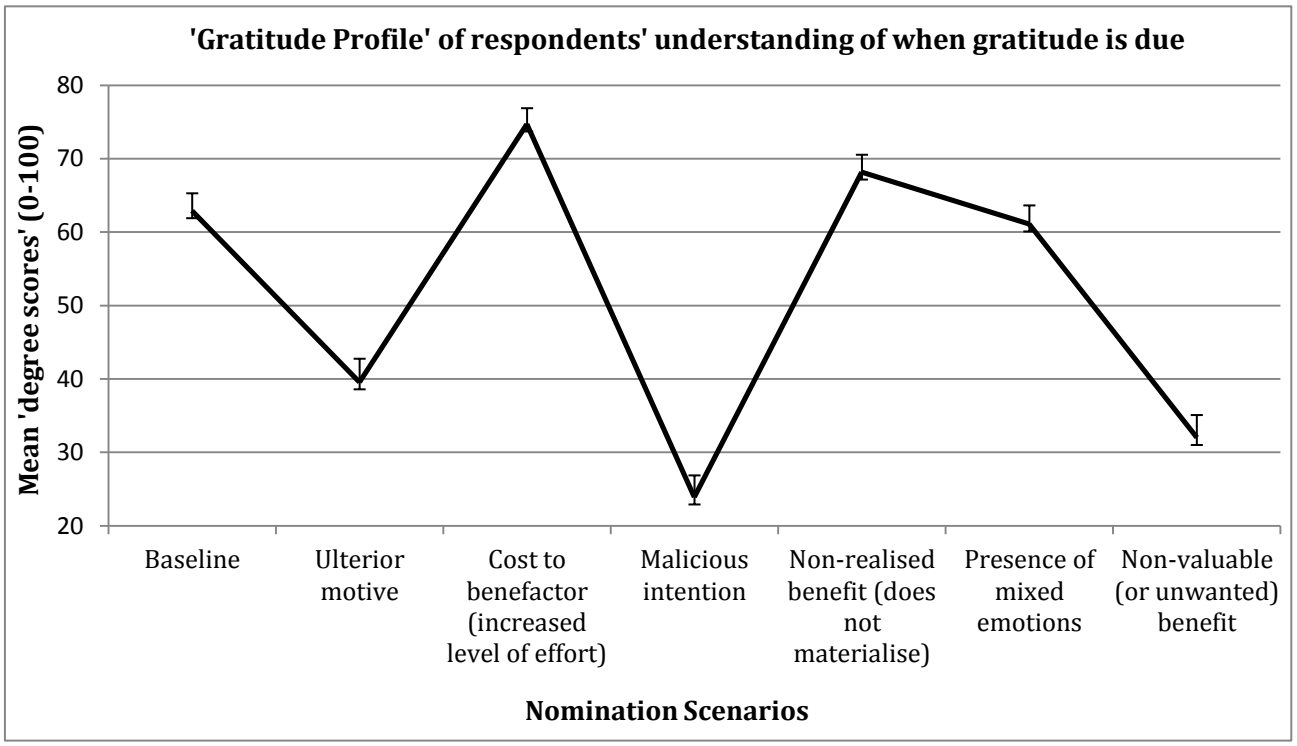

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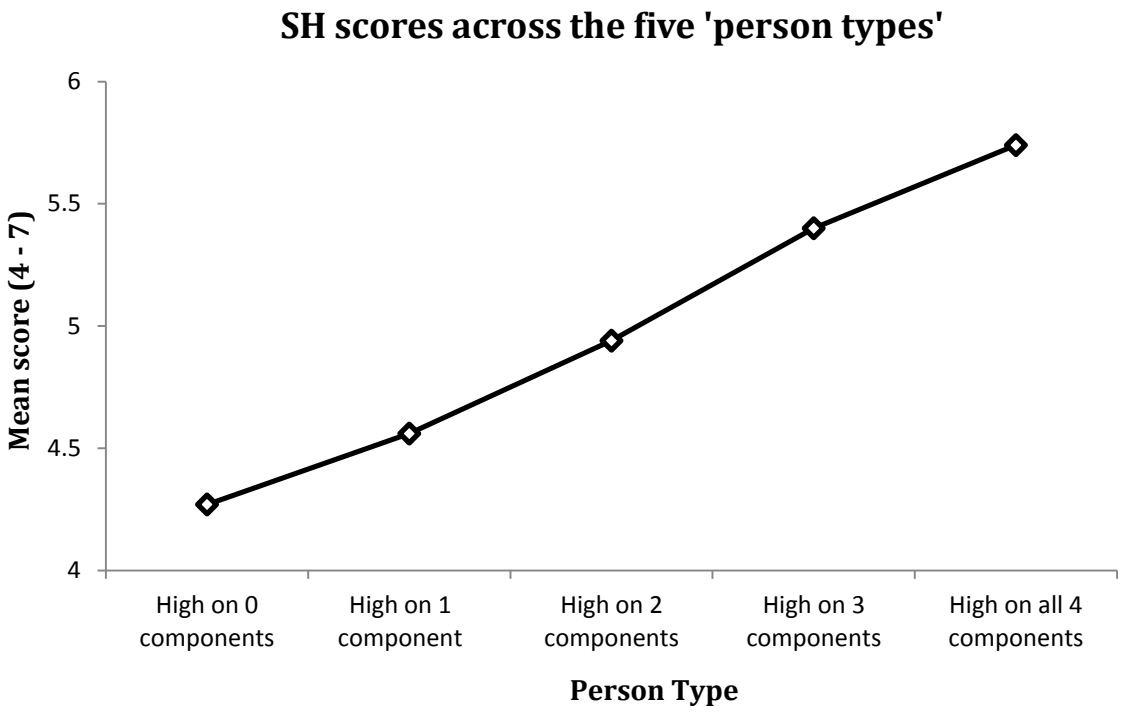

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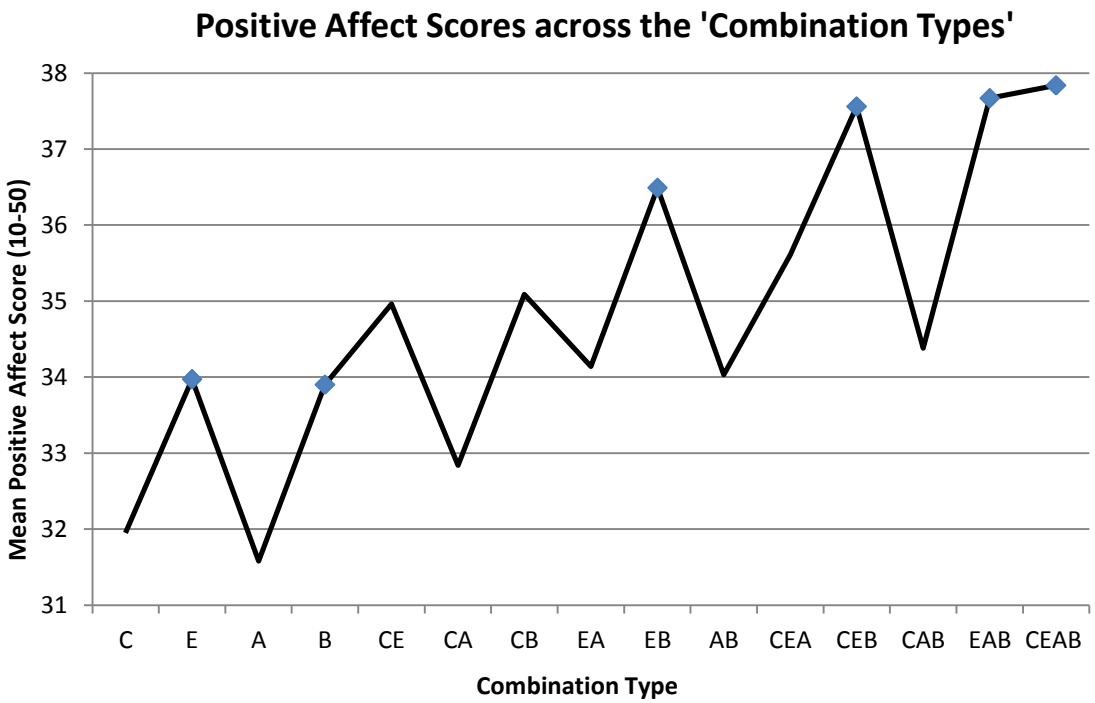

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CA = Conceptual and attitude
CB = Conceptual and behaviour
EA = Emotion and attitude
EB = Emotion and behaviour
AB = Attitude and behaviour
CEA = 'Above average' on conceptual, emotions and attitude components
CEB = Conceptual, emotion and behaviour
CAB = Conceptual, attitude and behaviour
EAB = Emotion, attitude and behaviour
CEAB = 'Above average' on all four components of the MCGM

Appendix 1: Table demonstrating the various scenarios, and questions, in the Conceptual Component of the MCGM.

Gratitude scenarios (Nomination for award)
Baseline *A colleague nominates you for an award at work. If you win, you will receive recognition of your hard work and a voucher.* • You **are** grateful to this person for their help *(1=Strongly agree – 5=Strongly disagree)* • Please indicate the **degree** of gratitude you feel: *(Not at all grateful – Most grateful you could feel)*
Ulterior Motive *A colleague nominates you for an award at work. If you win, you will receive recognition of your hard work and a voucher. The colleague has nominated you because she wants you to repay the favour by helping her with her own workload.* **Cost to benefactor** *A colleague nominates you for an award… The colleague had to spend a long time filling in the nomination form outside of work.*
Non-realised benefit *A colleague nominates you for an award at work... In the end you do not win the award.*
Malicious intent *A colleague nominates you for an award at work…. You do not get on with this colleague and you know that she only nominated you because she knew it would embarrass you.* **Value of benefit** *A colleague nominates you for an award…You do not want to win this award and would rather that you had not been nominated.* **Mixed emotions** *A colleague nominates you for an award at work… You feel thankful that your colleague nominated you but you also feel uncomfortable now that you are indebted to her.*

Appendix 2: The number and demographics of participants who took part in Study 2 (the validation of the MCGM):

Demographics	**Study 2 and 3**		**Estimates of UK population (%)**	**Demographics**	**Study 2 and 3**		**Estimates of UK population from 2011 UK Census (%)**
	Numbers	**%**			**Numbers**	**%**	
No. participants	1599			Religion			
				Agnostic	160	10.00%	
% Female		52%	50.81	Atheist	374	23.40%	25.10%
Age range	18-83 yrs			Buddhism	5	0.30%	0.40%
Mean Age	51		39.9	Christianity	897	56.10%	59.30%
18-30yrs	67	4.20%	~15%	Hinduism	8	0.50%	1.50%
31-40yrs	331	20.70%	13.00%	Islam	9	0.60%	4.80%
41-50yrs	370	23.10%	14.30%	Judaism	6	0.40%	0.50%
51-60yrs	371	23.20%	12.50%	Sikhism	2	0.10%	0.80%
61-70yrs	365	22.80%	11.00%	Spirituality	25	1.60%	
>70yrs	95	5.90%	11.90%	Other	328	20.50%	0.40%
Employment				Practise Religion			
Higher	104	6.50%	No comparable estimates	Yes	336	21.00%	No comparable estimates
Intermediate	459	28.70%		No	646	40.40%	
Supervisory	347	21.70%		Relationship Status			
Skilled Manual	61	3.80%		Single	122	7.60%	68.50%
Semi-skilled manual	32	2.00%		Partner	27	1.70%	
Unskilled manual	31	1.90%		Long term partner	108	6.80%	
Casual	18	1.10%		Co-habiting	109	6.80%	
Pensioner	353	22.10%		Married	1064	66.50%	29.80%
State benefit	36	2.30%		Civil Partnership	11	0.70%	No comparable estimates
Other	144	9.00%		Separated	22	1.40%	
Ethnicity				Divorced	83	5.20%	1.50%
White-British	1490	93.20%	White: 87.1%	Widowed	50	3.10%	
White-Irish	26	1.60%		Other			
White Other	32	2.00%		Dependants YES	930	58.20%	No comparable estimates
Black British Caribbean	1	0.10%	Black British (African/Caribbean): 3%	Dependants NO	662	41.40%	
Black British African	1	0.10%		Average no. dependants	2.1		1.7
Black Other				Geographical location			
Asian-British Indian	15	0.90%	2.30%	England	1274	79.70%	84%
Asian-British Pakistani	4	0.30%	1.90%	Scotland	96	6.00%	8%
Asian-British Bangladeshi	1	0.10%	0.70%	Wales	53	3.30%	5%
Chinese	9	0.60%	0.70%	N. Ireland	19	1.20%	3%
Asian Other	2	0.10%	1.40%				
Mixed White and Black Caribbean	1	0.10%	Mixed/Multiple ethnicity: 2%				
Mixed White and Black African							
Mixed White and Asian	3	0.20%					
Mixed Other	2	0.10%					
Other Ethnicity	1	0.10%	0.90%				

Appendix 3: Summary of the final output of the three-step hierarchical regression when predicting Satisfaction with Life, Subjective Happiness and Positive Affect.

SWL Model	Variables entered	Method	β	t	p value	R	R^2	R^2 change	F change	Significance of F change
1	Demographics:	Enter								
	Gender		-.007	-.194	.846					
	Age		.112	3.217	.001	.144	.021	.021	4.242	.002**
	Religion		.003	.80	.936					
	Practise religion		.076	2.169	.030					
2	Big Five:	Enter								
	Agreeableness		.153	4.382	.000					
	Conscientiousness		.074	2.156	.031					
	Neuroticism		-.161	-4.343	.000	.367	.135	.114	21.817	.000**
	Openness		.041	1.219	.223					
	Extraversion		.097	2.657	.008					
3	GQ6	Enter	.154	3.434	.001					
	GRAT		.494	10.787	.000	.636	.400	.270	124.47	.000**
	Appreciation Scale		-.006	-.178	.859					
4	MCGM:	Enter								
	ConceptualARE		-.044	-1.215	.225					
	ConceptualDEGREE		.062	1.715	.087					
	Emotion		.048	1.210	.227	.654	.428	.023	6.626	.000**
	Attitude		-.159	-5.160	.000					
	Behaviour		.084	2.142	.033					
SH Model										
1	Gender	Enter	-.087	-2.559	0.11					
	Age		.213	6.281	.000	.279	.078	.078	17.556	.000**
	Religion		.001	.019	.985					
	Practise religion		.133	3.890	.000					
2	Agreeableness	Enter	.236	8.045	.000					
	Conscientiousness		.067	2.297	.022					
	Neuroticism		-.311	-9.960	.000	.622	.387	.309	83.42	.000**
	Openness		.057	2.032	.042					
	Extraversion		.165	5.386	.000					
3	GQ6	Enter	.183	4.615	.000					
	GRAT		.294	7.263	.000	.731	.534	.147	86.685	.000**
	Appreciation Scale		.011	.339	.734					
4	ConceptualARE	Enter	-.054	-1.673	.095					
	ConceptualDEGREE		.053	1.622	.101					
	Emotion		.054	1.524	.128	.741	.549	.016	5.661	.000**
	Attitude		-.095	-3.452	.001					
	Behaviour		.125	3.596	.000					
Positive Affect Model										
1	Gender	Enter	.022	.612	.541					
	Age		.033	.931	.352	.087	.007	.007	1.572	.180
	Religion		.012	.341	.733					
	Practise religion		.075	2.103	.036					
2	Agreeableness	Enter	.052	1.768	.077					
	Conscientiousness		.287	9.802	.000					
	Neuroticism		-.223	-7.044	.000	.612	.374	.367	96.977	.000**
	Openness		.208	7.354	.000					
	Extraversion		.213	6.883	.000					
3	GQ6	Enter	.229	5.404	.000					
	GRAT		.077	1.770	.077	.683	.466	.092	47.416	.000**
	Appreciation Scale		.099	2.974	.003					
4	ConceptualARE	Enter	-.007	-.217	.828					
	ConceptualDEGREE		.064	1.870	.062					
	Emotion		.109	2.890	.004	.694	.482	.015	4.898	.000**
	Attitude		-.104	-3.524	.000					
	Behaviour		.042	1.119	.263					

Appendix 4. Summary of results from MANOVA examining the effect of the conceptual stage on gratitude scores

Gratitude Scale		Low 'Are total'	Medium 'Are total'	High 'Are total'	Low 'Degree total'	Medium 'Degree total'	High 'Degree total'
GQ6	*Mean (SD)*	5.36 (.97)	5.47 (.94)	5.77 (.88)	5.33 (.98)	5.47 (.91)	5.72 (.91)
	F scores [a]	24.72***			23.68***		
	Sig [b] *(Low/Med; Med/High)*	.155	<.001		.046	< .001	
GRAT	*Mean (SD)*	106.1 (17.82)	108.7 (17.22)	112.9 (17.30)	105.6 (18.22)	108.2 (16.76)	112.7 (17.29)
	F scores	19.16***			22.49***		
	Sig (Low/Med; Med/High)	.027	.001		.048	< .001	
Appreciation Scale	*Mean (SD)*	75.64 (17.41)	78.30 (17.74)	83.08 (18.06)	74.83 (74.83)	76.75 (16.76)	84.11 (17.83)
	F scores	22.01***			41.72***		
	Sig (Low/Med; Med/High)	.030	< .001		.216	< .001	
Emotion Component	*Mean (SD)*	32.70 (6.19)	33.88 (5.48)	35.89 (5.26)	32.53 (6.08)	33.86 (5.41)	35.51 (5.62)
	F scores	38.72***			36.43***		
	Sig (Low/Med; Med/High)	.001	< .001		< .001	< .001	
Attitude Component	*Mean (SD)*	54.24 (8.34)	55.95 (7.75)	58.99 (7.55)	54.23 (8.38)	55.88 (7.72)	58.21 (7.81)
	F scores	44.66***			33.51***		
	Sig (Low/Med; Med/High)	.001	< .001		.002	< .001	
Behaviour Component	*Mean (SD)*	60.65 (11.77)	62.55 (11.87)	65.11 (11.86)	60.18 (11.65)	61.63 (11.45)	65.73 (11.78)
	F scores	17.91***			32.63***		
	Sig (Low/Med; Med/High)	.016	.002		.125	< .001	

Notes:

a. F scores are taken from Tests of Between-Subjects Effects.

b. Significance levels are taken from post-hoc Bonferroni tests exploring the mean difference between low and medium 'Are/Degree totals' and between medium and high 'Are/Degree totals'.

*** $p < .001$.

Appendix 5: Item means and standard deviations and corrected item-total correlations for Studies 1 and 2

MCGM Subscale:	**Item**	**Study 1**			**Study 2**		
		Item Mean	Item SD	Corrected Item-Total Correlation	Item Mean	Item SD	Corrected Item-Total Correlation
FEELINGS OF GRATITUDE *[E]*	There are so many people that I feel grateful towards	5.49	1.29	.703	5.19	1.38	.750
FEELINGS OF GRATITUDE *[E]*	There are so many people that I feel grateful for	5.65	1.27	.745	5.39	1.37	.762
FEELINGS OF GRATITUDE *[E]*	I feel appreciative of the support of many people in my life's journey	6.00	0.98	.647	5.80	1.16	.727
FEELINGS OF GRATITUDE *[E]*	I feel grateful for the people in my life	6.25	0.95	.668	6.07	1.04	.698
FEELINGS OF GRATITUDE *[E]*	Thinking about all I have to be grateful for makes me feel happy	5.55	1.20	.634	5.60	1.16	.644
FEELINGS OF GRATITUDE *[E]*	There are many things that I am grateful for	6.06	1.03	.677	5.90	1.08	.733
ATTITUDES TO APPROPRIATENESS *[A]*	Gratitude should be reserved for when someone does not want anything in return (*)	5.36	1.25	.661	4.60	1.68	.547
ATTITUDES TO APPROPRIATENESS *[A]*	Gratitude should be reserved for when someone intends to benefit you (*)	5.58	1.27	.655	5.25	1.46	.667
ATTITUDES TO APPROPRIATENESS *[A]*	I only show gratitude to people who have benefitted me without wanting anything in return (*)	5.20	1.32	.628	5.06	1.49	.645
ATTITUDES TO APPROPRIATENESS *[A]*	I only show gratitude for the things that are not already due to me/are mine by right (*)	5.18	1.27	.614	5.35	1.33	.601
ATTITUDES TO APPROPRIATENESS *[A]*	I only show gratitude towards people who clearly intended to benefit me (*)	5.57	1.21	.628	5.30	1.43	.674
ATTITUDES TO APPROPRIATENESS *[A]*	I only feel grateful when the benefit is of genuine value to me	5.32	1.22	.566	5.01	1.46	.486
BEHAVIOURAL SHORTCOMINGS *[B]*	I forget to let others know how much I appreciate them (*)	4.02	1.56	.574	4.51	1.75	.630
BEHAVIOURAL SHORTCOMINGS *[B]*	I forget to reflect on the things that I am grateful for (*)	4.01	1.65	.686	4.37	1.85	.752
BEHAVIOURAL SHORTCOMINGS *[B]*	I overlook how much I have to be grateful for (*)	4.09	1.66	.669	4.38	1.87	.723
BEHAVIOURAL SHORTCOMINGS *[B]*	I forget to remind myself that there is so much in life to be thankful for (*)	4.03	1.70	.641	4.30	1.88	.672
RITUALS/NOTICING BENEFITS *[B]*	I stop to recognize all the good things I have in my life	4.71	1.28	.806	4.39	1.57	.767
RITUALS/NOTICING BENEFITS *[B]*	I recognise how many things I have to be grateful for	5.04	1.24	.834	4.83	1.54	.809
RITUALS/NOTICING BENEFITS *[B]*	I stop and think about all the things I am grateful for	4.69	1.23	.814	4.39	1.55	.825
RITUALS/NOTICING BENEFITS *[B]*	I reflect on all the good things I have	4.92	1.27	.822	4.70	1.49	.833
RITUALS/NOTICING BENEFITS *[B]*	I remind myself of the benefits I have received	4.74	1.27	.758	4.36	1.56	.771
EXPRESSIONS (OF GRATITUDE) *[B]*	I make it a priority to thank others	5.82	1.19	.650	5.67	1.34	.752
EXPRESSIONS (OF GRATITUDE) *[B]*	I express thanks to those who help me	6.09	1.03	.582	5.77	1.25	.704
EXPRESSIONS (OF GRATITUDE) *[B]*	I notice the people who are kind to me	5.91	1.04	.611	5.63	1.29	.694
EXPRESSIONS (OF GRATITUDE) *[B]*	I go out of my way to thank others for their help	5.09	1.24	.571	5.22	1.41	.711
ATTITUDE OF GRATITUDE *[A]*	I don't think it is necessary to show your gratitude to others (*)	6.33	0.98	.530	6.29	1.10	.415
ATTITUDE OF GRATITUDE *[A]*	I believe it is important to thank people sincerely for the help they give me	6.29	0.86	.519	6.44	0.87	.568
ATTITUDE OF GRATITUDE *[A]*	I believe gratitude is an important value to have	6.27	0.79	.527	6.54	0.81	.573
ATTITUDE OF GRATITUDE *[A]*	It is important to acknowledge the kindness of other people	6.49	0.68	.586	6.28	0.92	.536

Notes:

[E]denotes an emotion item; [A] = Attitude item; [B] = Behaviour item

(*) = Reverse Scored Item.