REGENT RESEARCH ROUNDTABLES

A Review of Five Scriptural-Based Quantitative Measurements Useful for Organizational Leadership Studies: A Research Note

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Roundtable: Organizational Leadership

Abstract

In this research note, I describe five scriptural-based quantitative measures: (a) a single-scale New Testament-based Organizational Spirituality – Leader that measures employees' perception of organizational spirituality culture by rating the frequency of observance of culture-related behaviors of the participant's leader; (b) a single-scale New Testament-based Organizational Spirituality – Climate that measures employees' feeling/sensing of the organizational spirituality culture, which measures climate by rating the frequency of feeling/sensing of organizational spirituality cultural values; (c) a seven-scale instrument that measures employees' self-reported frequency of behaviors aligned with each of the seven motivational gifts from Romans 12; (d) a seven-scale instrument to measure employees' perception of their leader's seven beatitudes; and (e) a nine-scale instrument to measure employees' perception of their leader's behaviors of each of the nine fruit of the Spirit. I present the creation of the instruments, their scale reliability Cronbach's alpha coefficient scores, and future research possibilities.

Keywords: scriptural-based, scales, reliability, future research

I describe five scriptural-based quantitative measurement instruments useful for organizational leadership studies in this research note. For each measurement, I explain the purpose of the instrument, the individual scales, if more than one scale exists, the validity and reliability test results, and subsequent empirical studies in which researchers used the instrument. Organizational researchers, consultants, and practitioners can rely on these measures for validity and reliability scrutiny in scholarly and legal reviews. I provide suggestions for future research and uses of the measures.

First, I present the most recent two instruments completed during a 3-year, three-phase New Testament-based organizational spirituality study. Second, I present the Romans 12 Motivational Gifts Test. Third, I present the seven scales to measure seven beatitudes. And, last, I present the nine scales to measure the Galatians 5 fruit of the Spirit.

New Testament-Based Organizational Spirituality Leader and Climate Scales

This three-phase study, completed in 2023, resulted in two quantitative scales: (a) New Testament-based Organizational Spirituality – Leader (NTOS-L), a 12-item scale to measure employees' perceptions of their leaders' observed behaviors representing organizational culture, and (b) New Testament-based Organizational Spirituality – Climate (NTOS-C) a 10-item scale measuring employees' perception of their sense/feel of organizational cultural values (organizational climate).

The Agapao-Base for the NTOS-L Scale

The 12-item NTOS-L scale was the optimized version of a 39-item factor in which the items represented leaders' instrumental values. Rokeach (2008) described instrumental values as verb-based action values people use to achieve terminal (end-state) values. End-state values are nouns that describe permanent attained states, such as peace, concern, truth, etc. (Rokeach, 2008). Winston and Gilbert (2023) noticed that the scale items used present-tense verbs that align with the biblical Greek concept of *agapao*. Tuulik et al. (2016) described Rokeach's terminal and instrumental values as: "the goals that a person would like to achieve during their lifetime and may vary among different groups of people in different cultures and instrumental values (referring to preferable modes of behavior; means of achieving the terminal values)" (p. 154).

Kierkegaard (1998), in his treatise on love, based a key component of his understanding of love on Matthew 7:15–20 when Kierkegaard wrote: "Yet when we say that love is known by its fruits, we are also saying that in a certain sense love itself is hidden and therefore is known only by its revealing fruits" (p. 8). Matthew 7:15–20:

> [15]Beware of the false prophets, who come to you in sheep's clothing, but inwardly are ravenous wolves. [16]You will know them by their fruits. Grapes are not gathered from thorn bushes nor figs from thistles, are they? [17]So every good tree bears good fruit, but the bad tree bears bad fruit. [18]A good tree cannot produce bad fruit, nor can a bad tree produce good fruit. [19]Every tree that does not bear good fruit is cut down and thrown into the fire. [20]So then, you will know them by their fruits. (*New International Version Bible [NIV]*, 1971/2011).

Jeanround (2010) inferred from Kierkegaard's (1998) reference that fruit are actions, which ties well with the concept of agapao love. Winston and Gilbert (2023), having noticed the relationship of the 39 items to agapao, decided to values-code the principles from Henson's (2021) collected work of 22 authors' exegetical studies, which was the basis for Winston's (2023) collected work on the New Testament-based Organizational Spirituality Leader and Climate scales. Winston and Gilbert (2023) found 28 terminal values aligned with the biblical Greek concept of *agape*, which represented traits of

people's love for others based on God's love for people, forming the scale development pool for the 10-item NTOS-C scale. The final 10-item scale was the optimized version of the final 16 items in the final factor analysis study.

The Agape Base for the NTOS-C Scale

Finn (2012) defined agape as self-giving love (p. 1), and Greenway (2016) considered agape as a moral reality. Thus, if we combine Finn and Greenway's propositions, we see agape as moral, self-giving love for others in social/organizational contexts. Tillich (1954) examined love within the context of power and justice as an ontological statement of being, which is appropriate in studying agape within a social/organizational context.

Agapao and Agape Working Together as Instrumental and Terminal Values

In John 13:34–35, we see both agapao and agape used: "A new commandment I give to you, that you love one another, even as I have loved you, that you also love one another. By this, all men will know that you are My disciples, if you have love for one another" (*NIV*, 1971/2011). In John 13:34, the Greek word used for love is "agapao," but in John 13:35, the Greek word for love is "agape." This commandment from Jesus implies that we must behave (verb) toward others because we have love (noun) toward others.

Descriptives for the Two Organizational Spirituality Scales

Winston et al.'s (2023) NTOS-L scale was developed using data from 435 participants who were 21 years or older and had three or more years of work experience. The 12-item scale had an eigenvalue of 9.80, which explained 81.7% of the data, and a Cronbach's alpha of 0.98. T-tests and ANOVA tests of the NTOS-L scale did not show significant differences by age, gender, or work experience. Concurrent validity was confirmed by correlation analysis showing a significant positive correlation with servant leadership.

Winston et al.'s (2023) 10-item NTOS-C scale was developed using data from 398 participants who were 21 years or older and had three or more years of work experience. The 10-item scale had an eigenvalue of 6.62, which explained 66.2% of the variance, and had a Cronbach's alpha of .94. T-tests and ANOVA analysis found significant differences by age, gender, and ethnicity. Concurrent validity was confirmed with a significant positive correlation with person-organization fit. Discriminant validity was confirmed when NTOS-C was not significantly correlated with a workplace-based anxiety measure.

Empirical Studies Using NTOS-L and NTOS-C

Winston et al. (2023) conducted correlation and regression studies of NTOS-L with employee well-being, servant leadership, altruistic love, inner life, and vision measures. The results showed the theoretical validity of the NTOS-L measure with the dependent variables. Of interest was a regression in which Winston et al. sought to see if servant leadership mediated the impact of NTOS-L on employee well-being and found that both servant leadership and NTOS-L were strong predictors of employee well-being, but servant leadership was not a mediator. NTOS-L was a strong predictor of employee well-being and did not need the mediation of servant leadership.

Winston et al. (2023) conducted a correlation of the NTOS-C, NTOS-L, affective commitment, normative commitment, and continuance commitment scales. NTOS-C had a significant positive correlation with NTOS-L and affective commitment, as hypothesized. However, unlike the literature-based understanding of normative commitment and continuance commitment, NTOS-C also had a significant positive correlation. In addition, out of curiosity, we ran a linear regression of the independent variables, affective commitment, continuance commitment, and normative commitment on the dependent variable NTOS-C. We found a significant regression model $F(3, 265) = 170.9$, $p < .001$. Both affective and normative commitment are significant predictors of NTOS-C, but continuance commitment was not a significant predictor. We recommended additional conceptual research on the normative and continuance commitment concepts and a revised commitment measurement study in keeping with Jaros's (2007) concerns about Allen and Meyer's (1991) scales.

Future Research of the NTOS-L and the NTOS-C Scales

Winston et al. (2023) recommended that future studies include a test–retest reliability analysis. The significant differences in NTOS-C averages between the 40–49 age group and the two age groups of 21–29 and 30–39 might provide an interesting qualitative study using focus groups to see if there are generational or other reasons for this result. The organizational commitment may be contextually constrained by generation. In addition, future research might want to study the reported differences between males and females and between Hispanics and White/Caucasians.

Norming studies of the NTOS-C scores to look for averages and standard deviations of different populations by gender, age, religion, and tenure might provide worthwhile information for consultants engaging in organizational development. Norming studies can be done as separate studies with large sample sizes or a concerted effort of a collection of researchers who agree to use the same demographic data categories across multiple empirical studies and pool their data about NTOS-C scores and demographic data.

The Romans 12 Motivational Gifts Test[1]

DellaVecchio and Winston (2015) conducted a scale development study from 2002 to 2004 that resulted in a seven-scale instrument to measure the seven motivational gifts from Romans 12. DellaVecchio and Winston followed Spector's (1992) scale development steps. The original 56 items for the motivational gifts came from the exegetical study of Romans 12 and the literature. A five-member panel of experts reviewed the items. Eight separate studies were conducted. The first was a pilot study of 20 participants to check for clarity of understanding by participants. The remaining seven studies allowed us to refine the items using follow-up interviews with participants who scored high (top quartile [above the 75th percentile of a gift]), and we asked questions about how each person we interviewed practiced each gift. The purpose was to see if the items for a gift were focused on the specific gift rather than a mixture of multiple gifts. We refined or deleted items after each study, resulting in an item pool of 29 items.

The items were focused on behaviors, and the response scale consisted of six items scored 0–5: (a) Absolutely not true of you, (b) True only in rare situations, (c) Sometimes true, (d) Usually true, (e) True almost all of the time, and (f) True all of the time.

In the eighth and final study, we collected data from 4,177 participants. We collected demographic data on gender and occupation. We asked open questions about participants' desired occupations and participants' self-reports of what each person saw as his or her natural abilities, such as mechanical, speaking, and mathematics. We used our social media contacts and a snowball sample asking them to share the link with their social media contacts.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .91, and Bartlett's Test of Sphericity was c^2 (406, N = 5,426) = 665,639.5, p = .000, thus showing the data would benefit from factor analysis. The study resulted in seven factors: (a) four-item scale for Perceiving with Cronbach's a = .80, (b) four-item scale for Serving with Cronbach's a = .68, (c) four-item scale for Teaching with Cronbach's a = .70, (d) four-item scale for Encouraging with Cronbach's a = .82, (e) four-item scale for Giving with Cronbach's a = .67, (f) four-item scale for Ruling with Cronbach's a = .82, and (g) five-item scale for Mercy with Cronbach's a = .89. The Gift Test can be found at www.gifttest.org.

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[1]This section contains excerpts from Winston, B. E. (2018). *Biblical Principles of Hiring and Developing Employees*. Palgrave Macmillan ISBN: 978-3-319-70526-2, Pages 43–67. Reproduced with permission of Palgrave Springer Nature.

Sample items from the seven scales are:

Perceiving:

- I am candid and open in expressing what I think and feel.
- I am a bold person.

Serving:

- I do useful, helpful things for people.
- I show my feelings by what I do for others more than what I say to them

Teaching:

- I enjoy research projects.
- I tend to analyze everything.

Encouraging:

- I make people feel joyful.
- I am a talkative person

Giving:

- I give generously and joyfully to people in need.
- I actively support organizations that help the less fortunate.

Ruling:

- I can create order out of chaos.
- I coordinate people and resources to get things done.

Mercy:

- I have an extraordinary ability to sympathize with those who are suffering.
- Crying with others and sharing their pain is a valuable use of my time.

Profiles of Gifts as Predictors of Job Satisfaction

According to Sekiguchi (2004), person-job fit can be defined as either the degree of match between the job demands and the person's abilities or the desires of the person and the attributes of the job. In the latter description, the Romans 12 gifts fit, in that the profile of the gifts becomes the desires of the person. Sekiguchi notes that some positive outcomes occur when the degree of person-job fit is high: (a) job satisfaction, (b) low

stress, (c) high performance, (d) high attendance, and (e) high retention. Saks and Ashforth (1997) point out that for much of the literature, the focus on person-job fit has been from the view of the job or the organization, and there needs to be more research done on person-job fit from the perspective of the person. DellaVecchio and Winston (2015) posited that certain gift profiles would be "best/better" matches for certain jobs.

DellaVecchio and Winston's (2015) study converted the scale scores from totals to percentages to have comparability across the seven scales (six scales had four items and one scale had five items). Before conducting exploratory cluster analysis on the fifth study, we converted the scale scores from 100% to a 3-point interval scale: (a) 0–33%, (b) 34–66%, and (c) 67–100%. This is because with 100 percentile steps for seven scales, there would be 100^7 (100 trillion) possible profiles, but with three steps for seven scales there would be 3^7 (2,187 possible profiles). While 2,187 possible profiles were a lot to consider, it was easier to grasp than 100 trillion.

McPherson (2008) conducted a cluster analysis study on a group of law enforcement officers using the same three-step scale used by DellaVecchio and Winston (2015). McPherson found that the officers with long tenure and high job satisfaction had a gift profile significantly different than the population DellaVecchio and Winston tested. Also, McPherson found three clusters among the long-tenure, high-satisfaction police officers that further support a profile mix.

Tomlinson and Winston (2011) followed the same methods as McPherson (2008) and tested 89 college professors using the Motivational Gifts test, Job Satisfaction (MSQ Short Form), and Saks and Ashworth's (1997) Person-Job Fit Scale. Tomlinson and Winston kept the motivational gift scale scores at the 100 percentile steps. Cluster analysis revealed two clusters. No significant differences between the two groups were found for either satisfaction or person-job fit. Tenure was coded as low (six or fewer years tenure) or high (seven or more years tenure). No statistical difference existed between the two tenure groups for satisfaction or person-job fit.

Tomlinson (2012) conducted a similar study with 54 nurses and found two clusters, but, of interest, unlike the study of professors, there was a significant difference in job satisfaction, with Cluster 2 showing higher job satisfaction.

Earnhardt (2014) conducted a study similar to McPherson (2008), Tomlinson and Winston (2011), and Tomlinson (2012), and examined the motivational gift profiles of 72 enlisted U.S. Air Force personnel. Earnhardt also used the MSQ and the Saks-Ashford Person-Job Fit scale. Cluster 1 scored significantly higher for job satisfaction and person-job fit.

Knopf (2016) examined the motivational gift profiles of entrepreneurs. Knopf used the IEO instrument by Bolton and Lane (2012). The IEO has three scales: (a) innovativeness,

(b) risk-taking, and (c) proactiveness. Knopf collected data from 417 participants and classified the participants into two groups: (a) entrepreneur and (b) non-entrepreneur. Knopf used the three scales from the IEO; those participants who scored above the median on all three scales were classified as entrepreneurs (76 of the 417 were classified as entrepreneurs). Knopf then performed a cluster analysis on the 76 entrepreneurs and found five clusters. She then conducted a discriminate analysis on the 417 participants' data to see if the motivational gift scores could predict entrepreneur group membership and found that 72% of the 417 were accurately predicted into the two groups.

Knopf (2016) went on to conduct a canonical correlation between the seven motivational gifts and the three scales of the IEO and found significant correlations. There is a need for additional study of how motivational gifts might be used to predict job satisfaction and person-job fit.

The Seven Scales to Measure the Seven Beatitudes[2]

Kilroy et al. (2014) developed a scale to measure each of the seven virtues described in Matthew 5. We treated each virtue as a separate concept because we could not find an operationalized definition of "beatitude" as a concept and we did not see any evidence to imply that there was a single concept.

Kilroy et al. (2014) developed an item pool of 12 items that could be used to measure each of the seven virtues. The 7-item response method for the survey ranged from 1 (*not at all like him/her*) to 7 (*exactly like him/her*).

A sample of 146 people completed a survey that evaluated their manager using the 12 items. Principle component analysis resulted in two factors, but the second factor consisted of only one item. Thus, we did not use that factor. The one factor explained 67% of the variance in the data and had a Cronbach's alpha above .90, which allows the optimization of the scale. We selected the five highest-loading items and reran the analyses. The resultant scale explained 74% of the variance and had a Cronbach's alpha of .91.

As a validity check, we correlated each of the seven scales with a single scale that measured supervisor effectiveness. The Poor in Spirit scale had a strong correlation of $r = .86$, $p < .01$. Also, we correlated the seven scales with the Essential Servant Leadership Behaviors (ESLB) (Winston & Fields, 2015) and the Despotic Leadership scale (DL)

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[2] This section contains excerpts from Winston, B. E. (2018). *Biblical principles of hiring and developing employees*, pp 1–40. Palgrave Macmillan. ISBN: 978-3-319-70526-2. Reproduced with permission of Palgrave Springer Nature.

(Hanges & Dickson, 2004). All seven virtue scales showed a significant positive correlation with the ESLB and a significant negative correlation with the DL scale.

The optimized five-item scale to measure the beatitude about mourning has a Cronbach's alpha of .95 and explained 82% of the variance. The scale to measure mourning correlated with the supervisor effectiveness scale $r = .77$, $p < .01$. The optimized five-item scale to measure the beatitude about gentleness has a Cronbach's alpha of .89 and explained 69% of the variance. The scale to measure gentleness correlated with the supervisor effectiveness scale $r = .77$, $p < .05$. The optimized five-item scale to measure the beatitude about seeking righteousness has a Cronbach's alpha of .92 and explained 76% of the variance. The scale to measure seeking righteousness correlated with the supervisor effectiveness scale $r = .73$, $p < .01$. The optimized five-item scale to measure the beatitude about seeking righteousness has a Cronbach's alpha of .93 and explained 77% of the variance. The scale to measure mourning correlated with the supervisor effectiveness scale $r = .82$, $p < .01$. The optimized five-item scale to measure the beatitude about being pure in heart has a Cronbach's alpha of .93 and explained 79% of the variance. The scale to measure pure in heart correlated with the supervisor effectiveness scale $r = .61$, $p < .01$. The optimized five-item scale to measure the beatitude about peacemakers has a Cronbach's alpha of .92 and explained 76% of the variance. The scale to measure peacemakers correlated with the supervisor effectiveness scale $r = .78$, $p < .01$.

The Nine Scales to Measure the Galatians 5 Fruit of the Spirit[3].

Bocarnea et al. (2018) provided a statistically validated scale for the nine fruit of the Spirit. At the time of the publication of Bocarnea et al.'s book, no studies or books existed that provided statistically validated scales for the fruit of the Spirit; thus, this project is a contribution to the theoretical and practitioner literature. These scales provide a useful set of measurement tools for human resource training and development programs, as well as individuals to self-evaluate their level of each fruit of the Spirit. In the book by Bocarnea et al., we provided forms that evaluate the nine fruit from the perspectives of self, peers, subordinates, and superiors, and presented examples of radar charts that could be used to see a comprehensive 360-degree profile.

We presented the nine fruit in three sections: (a) Relationship to God: love, joy, peace; (b) Relationship to others: patience, kindness, goodness; and (c) Relationship to self: faithfulness, gentleness, self-control. Each chapter of the book presented an exegetical

[3]This section contains excerpts from Bocarnea, M., Henson, J., Huizing, R., Mahan, M., & Winston, B. (2018). Evaluating employee performance through Christian virtues. Palgrave Macmillan. ISBN: 978-3-319-74343-1. Reproduced with permission of Palgrave Springer Nature.

study of the fruit, along with examples of how we might see each fruit in contemporary organizations. These nine virtues span a wide breadth of important personal and organizational attributes, including benevolence, affection, gladness, relational harmony, tranquility, perseverance, helpfulness, caring for the welfare of others, adherence to the beliefs and value of others, power used soberly, and mastering one's desires. While diverse, the list also suggests a holistic development of personal and organizational character. Understanding the way these traits can be measured will be a significant benefit to individuals and institutions.

The Context of Galatians

While this research is based on the fruit of the Spirit indicated in Galatians 5, very few of the word studies focus on the book of Galatians. Thus, it would be appropriate to give some context to the book of Galatians from which the fruit of the Spirit is drawn. Along with most commentators and early allusions or quotations, we support the authorship of Paul for this epistle (*NIV*, 1971/2011, Gal 1:1, 5:2). Dating the book is less straightforward since that would be dependent on both the recipients of the letter and whether Galatians 2 refers to the Jerusalem Council of Acts 15 or the Jerusalem visit of Acts 11 and 12 (Hansen; Witherington). Additionally, there is the perennial debate about whether Galatians was written to South Galatia or North Galatia. While all of these aspects of the letter are intriguing and the authors of this book hold various views on them, we do not find that the dating, place of writing, or recipients of the letter significantly influenced the studies on the fruit of the Spirit.

Exegetical Presuppositions

While we seek to limit biases as much as possible throughout our analysis, it would be naïve to believe that we do not come from certain presuppositions. We attempt to list all of these in the following paragraphs.

The Holy Spirit cannot be measured. It is not our intention through this research to suggest that there is a manner in which the Holy Spirit—who is naturally the life that cultivates the fruit of the Spirit—can be measured. We expect that the work of the Spirit is similar to that expressed in John 3:8—He cannot be measured any better than all the contemporary scientific instrumental attempts at measuring the wind. Thus, our intention is not to suggest that the outcomes of this research will be able to in any way predict the work of the Holy Spirit.

The scales we developed are not comparative. We are not suggesting that the outcomes of this analysis are applicable beyond the individual responses. In other words, the results should not be compared to each other. There are two reasons for this. First, the Holy Spirit works in a person's life in far more ways than simply the development of these fruit. While the fruit is the result of the work of the Spirit, we have not attempted

to longitudinally understand the work of the Spirit that leads to ripe fruit. Second, as will be discussed in the next bullet, those without the Holy Spirit's presence can display these fruit. As such, while we are confident that the results are indicative of any individual that might use this instrument, at the same time, the instrument is not tested to indicate comparative results.

Even those without the Holy Spirit can display the character of God because of the *Imago Dei*—this is a particularly important element of our study. While we recognize that the fruit of the Spirit can only be fully culminated through the work of the Holy Spirit, we also recognize that those without the Holy Spirit may be able to display these characteristics simply by the fact that all humanity is capable of displaying elements of the character of God because we have been created in His image. This is further supported in that each of the fruit has some basis in non-biblical leadership research. We hope through our study to bring a distinctly Christian approach to these leadership characteristics. This means that the instruments can be applied to those who perceive the presence of the Holy Spirit and those who do not.

Exegetical Methodology

In each chapter of Bocarnea et al.'s book (2018) about the fruit of the Spirit, we sought to examine the background of the fruit of the Spirit and the framework for the study. Each chapter looked at the background of Paul's Epistle to the Galatians and the cultural context of his discussion of the fruit of the Spirit. We identified the framework for the study and outlined the hermeneutical perspectives from which we examined each fruit. We addressed the "fruit" from a perspective of the move toward positive organizational behavior in contemporary organizations and related leadership and managerial practices. As a foundational base for each of the nine chapters, we discussed how biblical/Hellenistic values apply to contemporary organizational leadership/management.

Each chapter followed the following outline: (a) a current or biblical exemplar of fruit to be studied; (b) a concise NT/OT/Hellenistic/Greco-Roman review of fruit; (c) the Old Testament context of the fruit; (d) the New Testament context of the fruit; (e) the operational definition of the word with potential items for scale development; and (f) the application of the framework to contemporary leadership/management. Lastly, we explored the practical and theological implications of measuring the fruit of the Spirit and the challenges of quantifying a work of the Holy Spirit.

Scale Development Process

We followed DeVellis' (2017) guidelines for scale development: (a) determine what you want to measure, (b) generate an item pool, (c) determine the format for measurement, (d) have item pool reviewed by experts, (e) consider the inclusion of validation items, (f)

administer items, (g) evaluate items, and (h) optimize scale length. In each chapter of Bocarnea et al.'s (2018) book, we defined each fruit using exegetical research methods and explained how the fruit would be visible in contemporary organizations. Also, in each chapter, we presented the items that emerged from the research on each fruit. We chose a 7-point format for measurement, ranging from 1 (*never true*) to 7 (*always true*). A panel of three experts rated the items for each fruit on a scale of 1–5 with 1 (*the item was not an important representation of the fruit*) to 5 (*the item was crucial to the scale*). In the final study where we asked the participants to rate their current or former supervisor/leader using the optimized final scales for the fruit, to test for concurrent validity, we included two valuation scales: Essential Servant Leadership Behaviors developed by Winston and Fields (2015) and The Intuition Scale developed by Trauffer et al. (2010). We used Facebook and LinkedIn to solicit a participant group. In the request to participate, we also asked the readers to share the request with their network. Eighty-one people agreed to participate. We used SurveyMonkey to create the surveys (one for each of the nine fruit and a tenth survey to test the optimized scales for concurrent validity). We evaluated the items for each fruit using SPSS version 22 by running Kaiser-Meyer-Olkin (KMO), Bartlett's Test of Sphericity, Principal Component analysis, and Cronbach's alpha. We optimized the scales by selecting the five highest loading items for each scale if Cronbach's alpha was above .90.

KMO is a test that evaluates the suitability of the data for factor analysis. The KMO score is reported as a number between 0 and 1 with scores above .80 and 1.00 being suitable for factor analysis (Statistics how to, n.d.-b). Bartlett's Test of Sphericity evaluates if the variance between the items is equal. The test returns a chi-square value, and if the variances are not normal (alpha less than .05), then the data would benefit from factor analysis (National Institute of Standards and Technology, n.d.).

Validity

DeVellis (2017) defined content validity as follows: "Content validity concerns item sampling adequacy—that is, the extent to which a specific set of items reflects a content domain" (p. 84). We presented the content validity of the items for each of the nine fruit of the Spirit by showing the relationship of the items to the literature about each fruit, as well as the review by a panel of experts. Convergent validity measures if theoretically similar constructs are related (Trochim, n.d.). We tested for convergent validity by correlating the nine scales with the Essential Servant Leadership Behaviors (ESLB) scale developed by Winston and Fields (2015). The ESLB scale had a Cronbach's alpha of .96.

We attempted to measure discriminant validity using the Intuition scale developed by Trauffer et al. (2010) but found the *a* to be too low at .49, which is below the desired minimum of .70 (Nunnally & Bernstein, 1994). If we removed the third item, the *a* would be .63, but this would still be too low and be a two-item scale that, according to

Little, Lindenberger, and Nesselroade (1999), is too few items. Thus, we are not reporting discriminate validity in this study but recommending future research to examine discriminate validity.

In the first validation study, we had 115 participants, of which 62 were male, 51 were female, and two did not report gender. Six were aged 21–29, 21 were aged 30–39, 36 were aged 40–49, 24 were aged 50–59, and 26 were aged 60 and over, while two chose not to report their age. Of the 115, 101 were from the United States while seven were from South Africa, one each from Canada, Guatemala, Iran, Mexico, and Thailand, and two chose not to report their country of residence. One hundred four self-reported religious affiliation as Christian while three reported Judaism, three reported Native American, and six chose not to report religious affiliation. Table 1 shows the correlations between the nine scales and the ESLB.

A sample size of 115, according to GPower 3.0, is the minimum sample size for a one-tailed test with a correlation r H_1 of 0.3, an error probability of 0.05, $1 - \beta$ error probability of 0.95, and a correlation r H_0 of 0.0.

Reviewing the first validation study, we found two clerical errors in the item descriptions in the survey for Kindness and Self-Control. We conducted a second validation study of items for Kindness, Self-Control, and the ESLB scale. The second validation study had 98 participants, of which 43 were male, 54 were female, and one did not report gender. One was aged 18–20, five were 21–29, 18 were 30–39, 29 were 40–49, 24 were 50–59, and 21 were aged 60 and over. Ninety-three were from the United States, two were from South Africa, and one each was from Canada, Thailand, and the United Kingdom.

The sample size of 98 was less than the sample size of 115 we used in the first validation study. A sample size of 98, according to GPower 3.0, is greater than the minimum sample size for a one-tailed test with a correlation r H_1 of 0.4, an error probability of 0.05, $1 - \beta$ error probability of 0.95, and a correlation r H_0 of 0.0. Table 21 shows the Pearson r results for the nine scales and the ESLB scale for the first and second validation tests.

Table 1

Correlation of Each of the Nine Scales and the ESLB Scale

FOTS scale	Pearson r	FOTS scale	Pearson r
Love	.83**	Goodness	.84**
Joy	.83**	Faithfulness	.86**
Peace	.83**	Gentleness	.86**

Patience	.84**	Self-control	.88**
Kindness	.91**		

** p < .01.

Reliability

Item reliability is a measure of internal consistency across the items of a scale (Statistics How to, n.d.-a). We calculated the Cronbach's alpha for each factor. We optimized the scale for each factor with a Cronbach's alpha above 0.9 by selecting the five highest-loading items. This method avoided the risk of subjectivity in selecting items that we liked more than others. The Cronbach's alpha scores ranged from .92–.98

Test-retest reliability was determined by asking participants to complete the scales a second time about a week after completing it the first time. In the validity testing survey, 62 participants offered to complete the survey a second time. Of the 62 volunteers, 43 completed the study the second time. Participants provided their email addresses to match the second survey data to the first survey. Email addresses were deleted from all data collection files after matching the data so we could assure anonymity beyond the book authors. We ran paired t-tests on the before and after scores and found no significant differences in any of the nine paired tests; thus, test-retest reliability can be assumed.

Recommended Additional Research Studies

Additional research is needed to determine whether discriminant validity exists for the nine fruit of the Spirit scales. Also, conceptual research might be done on the antecedents of each of the nine scales based on the content from Chapters 1–9 of Bocarnea et al.'s (2018) book. Qualitative research asking employees to explain what it is like to work with managers who exhibit one or more of the fruit of the Spirit may help to understand outcomes produced by leaders who live by the Spirit.

Additional research is needed to determine if the nine fruit, individually, have an impact on organizational spirituality concepts such as: (a) human spirituality (Wheat, 1991), (b) organizational spirituality values (Kolodinsky, Giacalone, & Jurkiewicz, 2008), (c) spiritual transcendence (Piedmont, 1999), and (d) spirituality (Delaney, 2005).

Longitudinal studies tracking the changes in one or more of the fruit of Spirit might help to show any impact of leadership development and training interventions on the level of individual fruit of the Spirit.

Use of the Nine Scales for 360-Degree Evaluation

The nine scales developed can be used for self-measurement, as well as employees' perceptions of managers' attitudes and behaviors reflecting the nine fruit of the Spirit. A 360-degree review can be performed with managers' superiors and peers evaluating the managers, as well. However, contextual changes to the scale items would be needed. For example, peers and superiors' surveys would need to show the name of the manager at the beginning of the survey, and then items (from the Love Scale) from the current subordinate-survey:

- My manager effectively balances organizational outcomes and the needs of his/her followers.
- My manager demonstrates his/her appreciation for me by empowering me to accomplish assigned tasks.
- My manager makes me feel appreciated.
- My manager goes above and beyond to promote the welfare and growth of his/her followers.
- My manager creates a culture where everyone shares credit for the successes of the organization.

would be modified to:

- The manager identified at the beginning of this survey effectively balances organizational outcomes and the needs of his/her employees.
- The manager identified at the beginning of this survey demonstrates his/her appreciation for employees by empowering them to accomplish assigned tasks.
- The manager identified at the beginning of this survey makes employees feel appreciated.
- The manager identified at the beginning of this survey goes above and beyond to promote the welfare and growth of his/her employees.
- The manager identified at the beginning of this survey creates a culture where everyone shares credit for the successes of the organization.

The response scale would remain a 7-point format for measurement with the points ranging from 1 (*never true*) to 7 (*always true*).

In addition, the manager could evaluate him/herself with the items modified to:

- As a manager I believe that I effectively balance organizational outcomes and the needs of my employees.
- As a manager I believe that I demonstrate my appreciation for my employees by empowering them to accomplish assigned tasks.

- As a manager I believe that I show appreciation to all my employees.
- As a manager I believe that I go above and beyond to promote the welfare and growth of my employees.
- As a manager I believe that I create a culture where everyone shares credit for the successes of the organization.

The response scale would remain a 7-point format for measurement with the points ranging from 1 (*never true*) to 7 (*always true*).

A 360-degree approach to evaluating managers allows for a comparison of the manager's personal view with the employees' perceptions, the superior's perception, and the peers' perception. These comparisons can be shown by bar graphs or radar charts, such as shown in the following two hypothetical examples. Table 2 shows an example where there is general agreement across the four perspectives, and Table 3 shows disagreement across the perspectives.

Table 2

Example of a Manager's Self-Evaluation, Employees' Perceptions, Superior's Evaluation, and Peers' Evaluation Where the Perspectives Are Not in Agreement

	Self	Employees	Superior	Peers
Love	4.2	3.6	3.9	3.8
Joy	4.1	3.5	4.1	4.0
Peace	3.9	4.0	4.2	3.9
Patience	4.5	3.6	3.8	3.8
Kindness	4.2	3.7	4.2	3.9
Goodness	3.9	3.9	3.7	3.8
Faithfulness	4.2	3.6	4.1	3.7
Gentleness	4.5	4.2	3.9	3.8
Self-control	4.6	4.1	4.2	4.0

The bar chart and the radar charts shown in Figures 1 and 2 provide graphic representations of the four views of the managers' attitudes and behaviors that reflect the nine fruit of the Spirit.

Figure 1
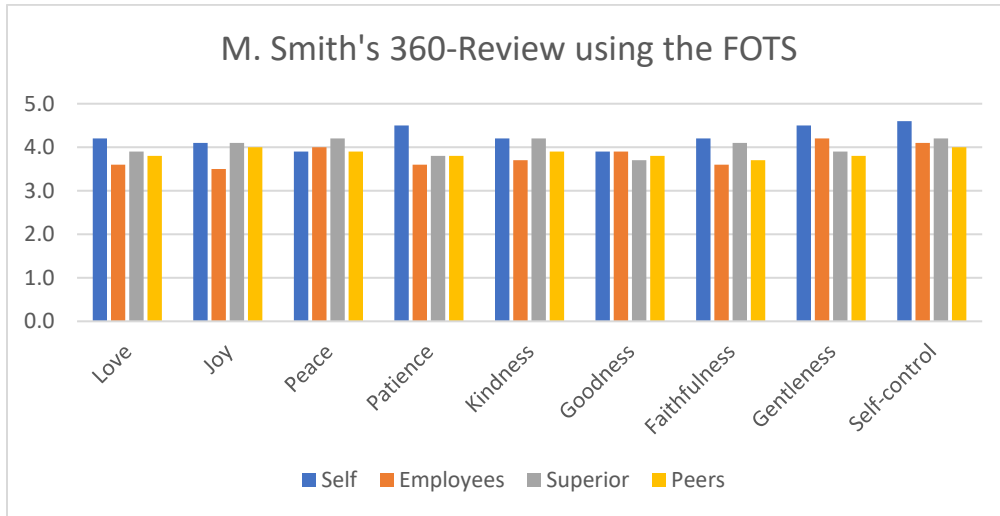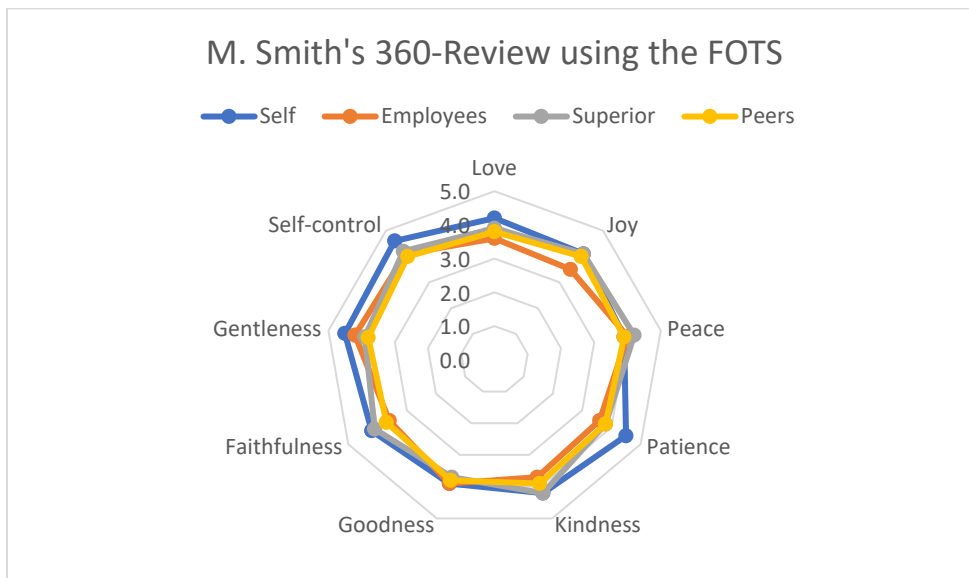
An Example of How a Bar Chart Depicts the 360-Review

Figure 2

An Example of How a Radar Chart Depicts the 360-Review

In the example above, the four perceptions of the manager's attitudes and behaviors are similar,

Table 3

Example of a Manager's Self-Evaluation, Employees' Perceptions, Superior's Evaluation, and Peers' Evaluation Where the Perspectives Are Not in Agreement

	Self	Employees	Superior	Peers
Love	4.2	3.2	3.9	2.8
Joy	4.1	2.9	4.1	2.8
Peace	3.9	2.6	4.2	2.4
Patience	4.5	2.1	3.8	1.9
Kindness	4.2	2.1	4.2	2.2
Goodness	3.9	2.2	3.7	2.4
Faithfulness	4.2	3.6	4.1	3.1
Gentleness	4.5	2.8	3.9	2.6
Self-control	4.6	2.7	4.2	2.8

The bar chart and radar chart, shown in Figures 3 and 4 provide a graphic representation of the data in Table 23.

Figure 3

An Example of How a Bar Chart Depicts the 360-Review with Disagreement Between the Perspectives
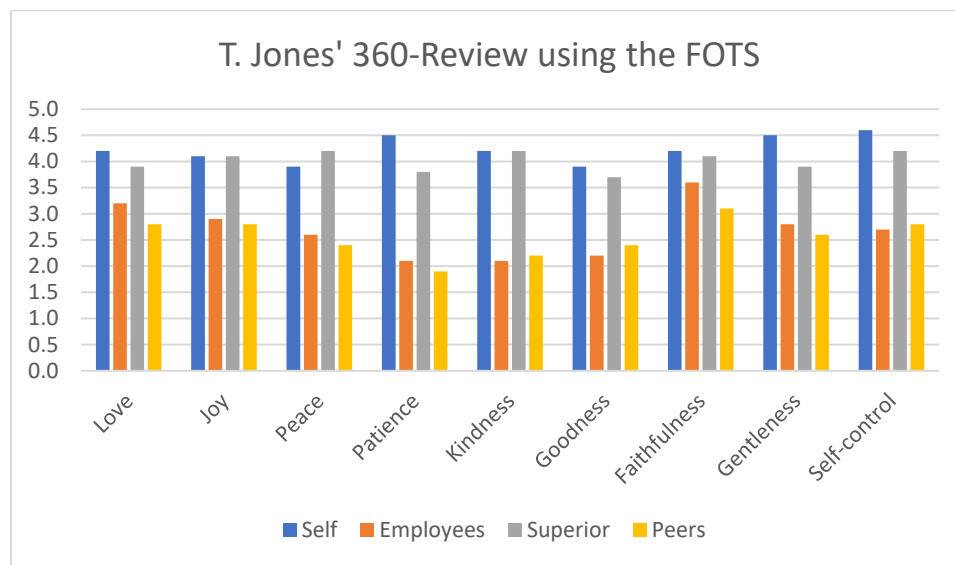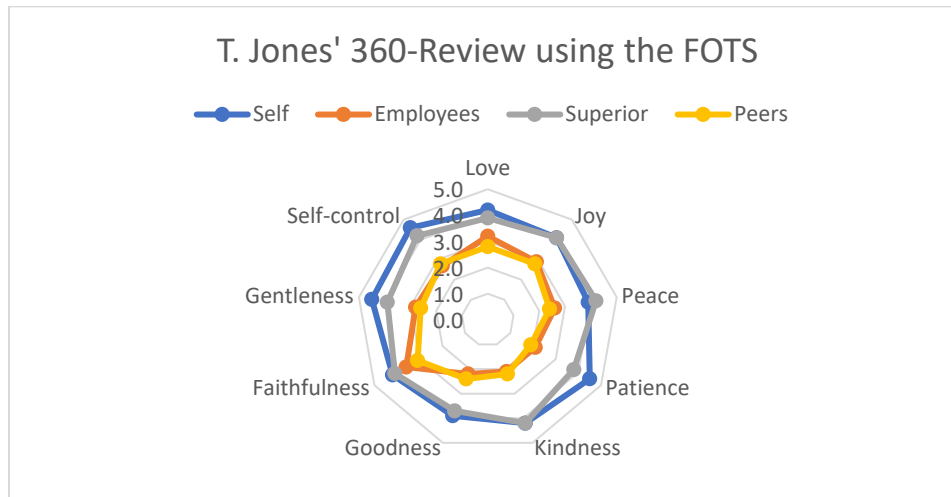
Figure 4

An Example of How a Radar Chart Depicts the 360-Review with Disagreement Between the Perspectives

The second hypothetical example indicates a possible need for follow-up interviews to see if a halo effect (Nisbett & Wilson, 1977) exists with the superior's review or if there is a lack of accuracy in reports from employees and peers about the manager.

Longitudinal studies could be used to show the impact of education, training, and/or maturation in the manager's leadership development efforts. Matched-pairs t-tests can be done for managers who complete leadership development projects/events.

Discussion

Suggestions for Future Research

Future research would help norm the scales/instruments described in this research note. Qualitative studies could help us understand the how of personal development of values and virtues described in the scales/instruments. While DellaVechhio and Winston (2015) conducted a comparison of religions in their development of the Romans 12 motivation studies, more comparisons   of religions and cultures would help us to understand the usefulness of the instruments in different areas of the world.

Case studies of consultants using the nine fruit of the Spirit scales to support progression in values and behaviors progression over time in leadership development programs could add to the body of knowledge. Case studies of consultants using the scales as specific measures with a person-supervisor fit measurement instrument or

using the definitions of the nine fruit in leadership development seminars and coaching events with leaders could add to the body of knowledge.

About the Author

Dr. Bruce Winston has been part of Regent University since 1991, both with the School of Business and the School of Business & Leadership. He led the School of Leadership as dean for one year and led the School of Business & Leadership as dean for seven years. He currently serves as Professor of Business and Leadership and is the director of the Ph.D. in Organizational Leadership program. His research interests include servant leadership, organizational development and transformation, leadership development, distance education, person-environment fit, employee well-being, and technology in higher education.

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