

## THE IMPORTANCE OF MEASUREMENT: DIMENSIONAL CONSTRUCT MEASURE

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### ABSTRAK

*Sebuah kutipan mengingatkan kita bahwa pengukuran itu penting, bahkan dalam kehidupan, juga dalam penelitian, secara kontekstual. Dalam proses penelitian yang dimulai dengan pertanyaan investigasi, kami mengidentifikasi konsep dan konstruksi yang relevan untuk diukur dengan mendefinisikan secara operasional semua konstruk. Setelah itu kita memilih skala / tingkat pengukuran konstruk dengan mengidentifikasi skala yang ada. Melalui ini, kita dapat merancang skala khusus: pilih pendekatan konstruksi, pilih jenis skala yang sesuai, buat skala, uji skala dan akhirnya kami memiliki pertanyaan pengukuran. Pengukuran merupakan salah satu hal yang penting dalam proses penelitian dalam membangun teori. Menurut Cooper & Schindler, pengukuran adalah menetapkan angka untuk peristiwa empiris sesuai dengan aturan pemetaan. Pengukuran menyiratkan memilih peristiwa empiris yang dapat diamati, mengembangkan seperangkat aturan pemetaan dan menerapkan aturan pemetaan. Dalam proses penelitian, pengukuran terletak pada tahap desain penelitian, terutama dalam pengumpulan data dan instrumen.*

**Keywords:** *Uni-dimensionality, Multidimensionality, Rating Scale, Factor Analysis*

### I. INTRODUCTION

Selecting and constructing a measurement scale requires the consideration of several factors that influence the reliability, validity, and practicality of the scale: research objective, response type, data properties, number of dimensions, balanced or unbalanced, forced or unforced choices, number of scales points, and rate errors (Cooper & Schindler, 2014).

In research objectives, researchers, however face two general type of scaling objectives: to measure characteristics of the participants who participate in the study, and to use participants as judges of the object or indicant presented to them. Measurement scales have four types: rating scale is used when participants score an object or indicant without making a direct comparison to another object or attitude; ranking scales constrain the study participant to making comparison and determining order among two or more properties; categorization ask participants to put themselves or property indicants in group or categories; and sorting requires that participants sort cards into piles using criteria established by the researcher. The choice of measurement scale is often related to data properties generated by each of scale, those are nominal, ordinal, interval and ratio scales.

Other consideration in selecting and constructing measurement scale are balanced or unbalanced, forced or unforced rating scales. A balance rating scale has an equal number of categories above and below midpoint, while unbalanced has an unequal number of favourable and unfavourable response choice. Unforced-choice rating scale provides participants with an opportunity to express no opinion when they are unable to make a choice among alternatives offered, meanwhile a forced-choice rating scale requires that participants select one of offered alternatives. For a scale to be useful, it should be match the stimulus presented and extract information proportionate

to the complexity of attitude object, concept or construct. Finally, the value of rating scales depends on the assumption that a person can and will make good judgement, so researcher should consider their tendencies to make error of central tendencies and halo effect.

## **II. LITERATURE REVIEW**

### **2.1 Dimensionality: Unidimensionality and Multidimensionality**

Regarding number of dimensions, measurement scales are either unidimensional or multidimensional. In unidimensional scale, researcher measures only one attribute of participant or object, it is a single dimension. A multidimensional scale recognizes that an object might be better described with several dimensions. Unidimensionality refers to the existence of a single trait or construct underlying a set of measure (Hattie 1985, McDonald 1981).an instrument all measure just one thing in common is a most critical and basic assumption of measurement theory (Gerbing & Anderson, 1988). Montinaro & Chirico, when measure customer satisfaction, used two approaches: one-dimensional measurement, namely the measurement of a single summary variable of CS that is generally identified with the overall satisfaction of the good produced or the service planned; and a multidimensional measurement, that takes account of all variables that characterize CS (Montinaro & Chirico, 2006). It shows us that unidimensionality only uses one dimension to explain the variable, while multidimensionality uses several.

According to Law, Wong & Mobley (1998) a construct is **multidimensional** when it refers to several distinct but related dimensions treated as a single theoretical concept. Multidimensional constructs can be distinguishes in various ways concerns the direction of the relationship between the construct and its dimensions: the construct may be termed superordinate when relationship flow from the construct to its dimension because it represents a general concept that is manifested by specific dimensions, if the relationship flow from the dimension to the construct, it may be termed aggregate because it combines or aggregates specific dimensions into a general concept (Edwards, 2001).

According to Law et al. (1996) a construct as multidimensional when it consist of a number of interrelated attributes or dimension and exist in multidimensional domain. They proposed a taxonomy of multidimensional constructs based on the relations between the construct and its dimensions with two approaches relational level and relational form. In term of relational level where the multidimensional construct does not exist at the same level as its dimensions, thus mid construct exist at deeper level than their dimensions, called as latent model. If the multidimensional construct exist at the same level as its dimensions, then we use relational form approach. If the dimensions can be algebraically combined to form an overall representation of the construct, it called aggregate model. Otherwise, if it cannot be, and formed as different profile of dimensional characteristics, it called profile model.

Moreover, **latent construct**, the construct as underlying higher-order abstraction behind their dimension, the dimensions are simply different forms manifested by the construct. In measurement scale all item are measuring the same construct with a certain degree of error. It has commonality among the dimensions and is unobservable latent variables. It also theoretical specified relation with its dimension and upward-influence tactics. It requires that the dimensions are manifestation of the multidimensional construct. It is single overall representation of all dimension, that latent commonality underlying the dimension, where overall latent construct lead to various dimension of the construct, because the construct are simply different ways the construct is realized.

The latent construct has commonality when the dimension of construct under latent have to be correlated and continuous. An **aggregate** model is a multidimensional construct in formed as algebraic composite of its dimensions, either linear or unlinear. It is single overall representation of all dimensions and the mathematical composite formed from the dimension. Over all construct is formed its dimensions under the aggregate model and it is continuous. While the **profile** model is not defined as algebraic function of their dimension because of their theoretical nature that the dimension of these multidimensional construct cannot be combined algebraically. Researcher usually specify various level of their dimensions and interpret the construct by profiling the level. As a set profiled characteristics of the dimensional, there is not a simple theoretical overall construct that summarizes a represent all dimensions. One need to partition each dimension artificially into different discrete level and end up classifying subject or exclude from a particular profile (Law, et al., 1996).

### **2.1 Rating Scale**

Researchers may use rating scale to measure their variables, that is a scale that score an object or property without making a comparison to another object or properties; either verbal, numeric, or graphic (Cooper & Schindler, 2014). There are some sample rating scales: simple category scale, multiple-choice single-response scale, multiple-choice multiple-response scale, Likert Scale summated scale, semantic differential scale, numerical scale, multiple rating list scale, constant-sum scale, staple scale, and graphic rating scale.

The simple category scale also called dichotomous scale offers two mutually exclusive response choice, such as yes-no, important-unimportant, agree-disagree, or another set of discrete categories if the question were different. When there are multiple options for the rater but only one answer is sought, the multiple-choice single-response scale is appropriate. A variation, the multiple-choice multiple response scale, also called a check-list, allows the rater to select one or several alternatives. Numerical scale have equal intervals that separate their numeric scale points, the verbal anchors serve as the label for the extreme points. A multiple rating list scale is similar to the numerical scale but differs in accepting a circled response from the rater and facilitating visualization of the result. Staple scale is used as an alternative to the semantic differential, especially when it is difficult to find bipolar adjectives that match the investigative question. A scale that helps the researcher discover proportions is the constant-sum scale, that participants allocates points to more than one attribute or property indicant, such that they total a constant sum usually 100 or 10. The graphic rating scale is a scale in which the participant places his or her response along a line or continuum, the score or measurement is its distance in millimeters from either endpoint. It was originally created to enable researchers to discern fine differences. The Likert scale and semantic differential scale will describe more in the following sections which referred most from Cooper and Schindler.

### **2.3 Likert Scales**

The Likert scale, developed by Rensis Likert, is the most frequently used variation of the summated rating scale, that consist of statement that express either a favorable or an unfavorable attitude toward the object of interest. Each response is given a numerical score to reflect its degree of attitudinal favorableness, and the scores may summed to measure the participant's overall attitude. Likert scale easy and quick to construct, however each item meets an empirical test for discriminating ability between

favorable and unfavorable attitudes. Likert scale which produces interval data are probably more reliable and provide a greater volume of data than many other scales.

In the beginning, a large number of statements were collected with criteria that each statement was relevant to the attitude being studied, and each was believed to reflect a favorable or favorable position on that attitude. Participants were asked to read each statement and to state the level of their agreement with it using a 5-point scale. For example value of 1 indicated a strongly unfavorable/strongly disagree, the other intensities were 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree), a strongly favorable attitude. To ensure consistent result, the assigned numerical values are reserved if the statement is worded negatively. Then, each participant's response are added to secure a total score. The next step is to array these total scores and select some portion representing the highest and the lowest total scores. Item analysis assesses each item based on how well it discriminates between those persons whose total score is high and low. The mean score for the high-score and the low-score group are then tested for statistical significance by computing t values. After finding the t values for each statement, they are rank-ordered, and those statement with the highest t value are selected. The 20 to 25 items that have the highest t values are selected for inclusion in the final scale. Researchers have found that a larger number of item for each attitude object improve the reliability of the scale.

#### **2.4 Semantic Differential Scales**

The semantic differential (SD) scale measure the psychological meaning of an attitude object using bipolar adjectives. The method consists of a set of bipolar rating scales, usually with 7 points, by which one or more participants rate one or more concept on each scale item. The SD scale is based on the proposition that an object can have several dimensions of connotative meaning. The meaning are located in multidimensional property space, called semantic space. Connotative meaning are suggested or implied meanings, in addition to the explicit meaning of an object.

The semantic differential is an efficient and easy way to secure attitudes from a large sample that may be measured in both direction and intensity. The total set of responses provides a comprehensive picture of the meaning of an object and a measure of the person doing the rating. It is a standardized technique that is easily repeated but escape many problems of response distortion found with more direct methods.

#### **2.5 Comparing Likert and Semantic Differential Scale**

Likert scales are questionnaires that are written with a 4-, 5-, or 6-point scale in which the respondents select a number that represents the level in which they agree. Likert scales often focus on generalizations. Semantic Differential Scales place opposite characteristics/traits/qualities at opposite ends of a scale. Then, respondents decide how much of the characteristic/trait/quality the item has.

Both scales encourage respondents to not only think but engage in discussions. Both promote higher-level thinking by requiring respondents to discuss the reasons for their choices, draw conclusions, make inferences, use text as support, and make connections. Likert scales and semantic differential scales can also be used as a pre- and post-assessment to show respondents thinking before and after a unit of study.

Table 2.1 Examples of item transformations from a Likert to a semantic differential format

	Not true at all				Very true				
<b>Likert format</b>									
I feel that my future look promising	1	2	3	4	5	6	7		
It is easy for me to think of good conversational topics	1	2	3	4	5	6	7		
<b>Semantic differential format</b>									
I feel that my future looks	uncertain	1	2	3	4	5	6	7	promising
To think of good conversational topics is	easy for me	1	2	3	4	5	6	7	difficult for me

(Friborg, et al., 2006)

In measuring positive psychological constructs, Likert-based response formats may introduce an acquiescence bias. To reduce this, items usually are transformed into negations of the concept. Such transformation may introduce errors, as negation of positive constructs may appear contra-intuitive. A semantic differential response format may be an alternative to negations for reducing new errors in scores. The problem of acquiescence is most pronounced with Likert-based scale containing only positively worded items. Acquiescence would then be demonstrated if the individual scored more than one on the negative item. A solution to this problem may be to create semantic differentials of all items, and cancel acquiescence out by placing the positive differentials to the right for half of the items. Within a Likert response format acquiescence biases may be reduced by reversing items. The results from the present study indicated that data collected with a semantic differential format fitted the measurement model better than data collected with Likert format. The internal consistency in the semantic version was generally above the recommended limit (Cronbach, 1990), but lower than in the Likert version. The semantic version proved better than Likert version in term of model fit and uni-dimensionality (Friborg, et al., 2006).

### Exploratory Factor Analysis and Confirmatory Factor Analysis

Factor analysis is a common statistical method used to find a small set of unobserved variables which can account for the covariance among a larger set of observed variable. According to Carmines & Zeller (1979), Factor analysis is also used to assess the reliability and validity of measurement scales (Albright, 2008).

There are two kind of factor analysis as known: exploratory factor analysis and confirmatory factor analysis. Distinguishing between two categories of factor analysis depending on whether the investigator wishes to explore pattern in the data or to test explicitly stated hypothesis (Albright, 2008). Exploratory factor analysis (**EFA**) is available in general purposes statistical software such as SPSS. When carrying out an EFA no substantive constrains are imposed on the data. Instead it is assumed that each common factor affects every observed variable and that the common factors are either all correlated or uncorrelated (Albright, 2008). EFA is used to find a certain factors that can be explain a certain variable. EFA can reduce many factor to only one or some factors. EFA is designed for the situation where links between the observed and latent variables are unknown or uncertain (Byrne, 2010). The analysis proceeds to determine how, and to what extent the observed variable are linked to their underlying factors.

According to Williams (1995), in general, proponents of **CFA** believe that researchers need to have a strong theory underlying their measurement model before

analyzing data (Hurley, et al., 1997). CFA is theory driven (Albright, 2008), which is possible to place substantively meaningful constraints on the factor model, such as setting the effect of one latent variable to equal zero on a subject of the observed variables. The advantage of CFA is that it allows for testing hypotheses about a particular factor structure. Some researchers believe that CFA is still being used with little theoretical foundation, and that reviewers may be requiring CFA where a simpler alternative would be as or more appropriate. As the confirmatory, CFA confirm the certain amount of factors based on theory. In contrast to EFA, CFA is appropriately used when researcher has some knowledge of the underlying latent variable structure. Researchers postulate relation between the variables and test their hypothesized structure statistically based on knowledge of the theory, empirical research or both.

EFA may be appropriate for scale development while CFA would preferred where measurement models have a well-developed underlying theory for hypothesis patterns of loadings. A line of research would start out with studies utilizing EFA while later work would show what can be confirmed. A recent study by Gerbing and Hamilton (1996) using Monte Carlo methods found that EFA can contribute to model specification when used prior to cross-validation using CFA (Hurley, et al., 1997). Kelloway (1995) said that EFA is often considered to be more appropriate than CFA in the early stages of scale development because CFA does not show how well the items load on the non-hypothesized factors. Basically, the factor analytic model, either EFA or CFA, focuses solely on how, and the extent to which, the observed variables are linked to their underlying latent factors (Byrne, 2010).

### **The Islamic Work Ethic: An Unidimensional Construct**

According to Beekun (1997) IWE may be define as the set of moral principles that distinguish what is right from what is wrong in Islamic context. While Rizk (2008) stated that IWE is an orientation towards work (Ali, 1992) which is rooted in Islamic sharia principles (Rizk, 2008) and approaches work as a virtue or a valuable asset (Abdi, et al., 2014) in human's life. Ali (2005) add that IWE is originally based on the Quran and teachings (saying and practice) of the Prophet (Abdi, et al., 2014), who denoted that hard work caused sins to be absolved and the legacy of the four Caliphs of Islam, who led the Islamic nation after the prophet's death (Rizk, 2008); (Rokhman, 2010) and (Marri, et al., 2013). The IWE is an orientation that shapes and influences the involvement and participation of believers in the workplace (Ali & Al-Owaihian, 2008). According to Ahmad, 2011. The Islamic work ethics includes economic, social and moral elements (Abdi, et al., 2014). Islamic work ethic advocates the importance of performing one's work to the best of ability for the pleasure of God (Mohamed, et al., 2010).

According to Ahmad (1976), IWE does not stand for life denial but rather for life fulfillment that holds business motives in the highest regard (Sarwar & Abugre, 2013); (Hayati & Caniago, 2012); (Rizk, 2008) and (Ali & Al-Owaihian, 2008). IWE is parallel to the concept of 'Civilization of Islam', that stresses cooperation in work, and consultation is perceived as technique hindrances and evading blunders to meet one's need and establish equilibrium in one's individual and social life. The IWE stresses creative and innovative work as sources of pleasure and achievement. IWE signify that carry out business in a determined atmosphere will result in higher performance and extensive success. According to IWE there should be fairness and honesty in trade and at the workplace (Abbasi, et al., 2012). IWE competencies is ability to demonstrate the nature and grounds of morality, including moral judgments, standards, and rules of

conduct for organizational commitment (Sa'ari, et al., 2013) This paper conclude that IWE is applicable and practical to all human beings irrespective of religion, race and tribe (Kamaluddin & Abdul Manan, 2010).

The IWE construct captures the essence of work ethic in Islam. It highlights that work is an obligatory activity and a virtue in light of the needs of human being and the necessity to establish equilibrium in one's individual and social life. Work enables a person to be independent and is a source of self-respect, satisfaction and fulfillment. Success and progress on the job depends on hard work and commitment to one's job. Commitment to work also involves a desire to improve the community and societal welfare. Society would have fewer problems if individuals were committed to their work and avoided unethical methods of wealth accumulation. Creative work and cooperation are not only a source of happiness, but are considered noble deeds as well (Ali & Al-Owaihah, 2008).

Ali (1988) when conducted research in scaling IWE and individualism, approached three phase to develop IWE scale. Firstly, searching literature about IWE to develop the conceptual framework. Then, he refined statements by selected Islamic and Arab culture scholars. Finally, he spread 250 questionnaires to Arab students in US. In this research, Ali used a 46 statements to measure IWE and 7 for individualism. But, he concluded additional refinements and test are necessary. The IWE index was slightly but significantly correlated with the individualism scale the result suggested that there was no conclusive evidence of the effect of work experience on the relationship between IWE and individualism.

IWE scale focus is on the view that (1) work enables man to be independent and is a source of self-respect, satisfaction and fulfillment; (2) success and progress in the job depend on hard work and commitment to one's job; (3) commitment to work also involve a desire to improve the community and societal welfare (Ali, 1992) The IWE construct captures the essence of work ethic in Islam. It highlights that work is an obligatory activity and a virtue in light of the needs of human being and the necessity to establish equilibrium in one's individual and social life. Work enables a person to be independent and is a source of self-respect, satisfaction and fulfillment. Success and progress on the job depends on hard work and commitment to one's job. Commitment to work also involves a desire to improve the community and societal welfare. Society would have fewer problems if individuals were committed to their work and avoided unethical methods of wealth accumulation. Creative work and cooperation are not only a source of happiness, but are considered noble deeds as well (Ali & Al-Owaihah, 2008).

Most of research used IWE scale proposed by Ali (1992). This 17 items scale is the short version of the original scale that Ali (1988) used before (46 items). We can say that after 1988 there was not any progress in provision or improvement of IWE scales (Chanzanagh & Akbarnejad, 2011). Even Chanzanagh & Akbarnejad when conducted the research in iWE in Iranian used to another version (21 items). The 17 items scale are:

1. Laziness is a vice
2. Dedication to work is a virtue
3. Good work benefits both one's self and others
4. Justice and generosity in the work place are necessary conditions for society's welfare
5. Producing more than enough to meet one's needs contributes to the prosperity of society as a whole

6. One should carry work out to the best of one's ability
7. Work is not an end in itself but a means to foster personal growth and social relations
8. Life has no meaning without Work
9. More leisure time is good for society
10. Human relations should be emphasize and encourage
11. Work enables man to control nature
12. Creative work is a source of happiness and accomplishment
13. Any person who works is more likely to get ahead in life
14. Work gives one the chance to be independent
15. A successful person is the one who meets deadlines at work
16. One should constantly work hard to meet responsibilities
17. The value of work is delivered from the accompanying intention rather than its result

This sort version already applied in several Muslim countries such as Saudi Arabia, UAE, Kuwait, Indonesia and Pakistan, the results were relatively high (Zaman, et al., 2013) It can be inferred that IWE has some basic aspects such as: Hard work/effort, creativity for success, Team work, Good manner: honesty, dedication, commitment, justice, generosity, Good Moral, Work to personal and social life, Intention

Recognizing that most of studies in work ethic always been conducted in western countries with the Protestant Work Ethic (PWE) and capitalism relating, Ali (1992) believed there was a substantial need to examine the work ethic in non-western countries and with another values: individualism. Attitudes toward work in Arabian society are almost opposite to those in the West. After the breakdown of the Ottoman Empire, the western power over Arab countries hastened the decay of Arab commitment and respect for hard work. Moreover, after oil boom, people valued hard work and productive effort, but has given way to leisure, apathy and conspicuous consumption patterns. Meanwhile, work orientation changed as effect of improving communication, education, interaction with foreign culture, cultural and historical awareness, and technology. He then did research in IWE in Arabian Gulf region. He distributed IWE and individualism scale on Arab Gulf Management Development conference in 1986. He used a short version of IWE scale that he developed before. In this research he concluded: (1) minimal influence of demographic and organizational variables on the IWE and individualism, (2) strong commitment to hard work and value of working in one's life, (3) work ethic/individualism as an adequate force for capital formation and economic progress, and (4) devising work ethic measure specific to each culture was needed.

**Architecture.** Through his study, Ali (1992) arrange his paper in some section as follows:

- Introduction
- Method
- Results
- Discussion
- References

**Assumption.** IWE is an orientation toward work. It implies that work is a virtue in light of man's need and necessity to establish equilibrium in one's individual and



social life. Much of research on the work ethic has been carried out in the West. The focus has always been on the Protestant Work Ethic (PWE). Another work-related attitude gaining an ever-increasing importance is individualism, the study of which is essential for two reasons: it provides a better understanding of cultural variation among nations, and individualism in Western world is thought to enhance organizational performance and success. Thus, there is a substantial need to examine the work ethic and individualism in a non-Western setting (Arabia). Belief about work ethic have varied over time and place, especially in Arab and Islamic countries. Islam, unlike Christianity, views man as free from primordial guilt and hold that engagement in economic activities is an obligation. Attitude toward work in Arabia society are almost opposite to those in the West.

**Method.** IWE and Individualism Scale were distributed at a management conference in Saudi Arabia on Arab Gulf Management Development in November 1986. About 180 questionnaires were distributed, of which 117 were returned. The measure of IWE and the Individualism Scale were developed by Ali (1988) and were found reliable Cronbach's reliability coefficients were .89 and .79 respectively, and valid. A short version (17 items) was adopted for this study. The statement were rated on a 5-point Likert-type scale, with 1 representing the least important and 5 the most important.

**Result.** Pearson correlation analysis and reliability tests along with a one-way multivariate analysis of variance (MANOVA) were performed. This study's Cronbach's alphas for IWE and Individualism were .89 and .68 respectively. The overall mean on the IWE (4.16) was high. The IWE index was highly and significantly correlated with the Individualism Scale ( $r = .55, p < .01$ ). In addition, the IWE index had significant and high correlations with all items on the Individualism Scale. According to MANOVA results, age seemed to influence the IWE,  $F(51,289) = 1.69, p < .01$ . Nevertheless, the IWE and individualism did not differ across the rest of variables.

The results, while providing further evidence of the validity and reliability of the scales, shed light on four important issues: (a) the impact of demographic and organizational variables on deeply held values, (b) the myth of absence of the IWE, (c) work ethic/individualism and economic development, and (d) devising work ethic measure.

### **Spiritual Leadership: A Multidimensional Construct**

Dimension of spirituality in the workspace believed to have a significant contribution to the further development of leadership. According to Fairholm (1998) promising new areas of research on leadership have emerged that recognize leadership as the manifestation of a leader's spiritual core. Researchers like Cook-Greuter 2002, Sanders, Hopkin & Geroy 2003, Thomson 2000 and Wilber 2000, suggest the spiritual domain as integral component of leadership and put forth spirituality as one variable of an integrated leadership development model. The theory development of workplace spirituality and its relationship to leadership is in its infancy (Dent, et al., 2005). Fairholm (1996, 1998) was one of the first scholars to put the term spiritual and leadership together to explain spirituality in context of workplace leadership. And since then others have attempted to validate his model in order to move the field toward a theory of spiritual leadership. These are in accordance with Moxley (2000) suggestion that holistic leadership that integrates the four fundamental arenas the define the essence of human existence – the body (physical), mind (logical/rational thought), heart (emotions, feelings) and spirit – has come to al call (Fry, 2003).

Spiritual leadership defined as comprising the values, attitudes, and behaviors that are necessary to intrinsically motivate one's self and others so that they have a sense of spiritual survival through calling and membership (Fry, 2003). A causal theory of spiritual leadership is offered by Fry within an intrinsic motivation model that incorporates vision, hope/faith and altruistic love, theories of workplace spirituality and spiritual survival and the organizational outcome of commitment and productivity.

According to Fry et al. (2005), there are five dimensions in the theory of spiritual leadership, those are as follows: (1) Vision, describing the future path of organization and explaining the reasons for taking the path; defining self positioning and self behaviors; valuing the process of drafting the vision; hoping to construct a vision that call for feeling of meaningfulness in employee. (2) Hope/faith: affirming expectations; believing firmly that the vision/purpose/mission of the organization can be achieved, (3) Altruistic love: creating a sense of completeness, harmony, blissfulness through care, love, and appreciation of self and others, (4) Meaning/Calling: feeling that the life of an individual is meaningful, valuable, and capable of great achievements, (5) Membership: feeling of being understood and appreciated (Chen & Yang, 2012). The first three are factors of a leader's spirituality. The last two are factors of a follower's responses (Chen, et al., 2012). Two factors of a follower's responses, calling/work meaningfulness can be seen as motivation toward work and membership as motivation towards organization (Chen & Li, 2013).

**Architecture.** This paper was arranged as follows:

- Introduction
- Organizational transformation: the army transformation challenge, spiritual leadership, spiritual leadership and learning organization
- Method : sample and procedures, measures
- Result: test of spiritual leadership causal model, common method variance issues, comparison of initial and final survey results, survey comments
- Discussion: spiritual leadership as appropriative inquiry, implications for military leadership, army transformation through spiritual leadership, implication for leadership theory and research, implications for workforce spirituality theory and research
- Summary and conclusion
- References

**Assumptions.** Critical to the leadership of the Army transformation effort is a requirement to institutionalize a learning organizational paradigm with intrinsic motivation through spiritual leadership. Moreover, the spiritual leadership paradigm provides an integrating framework for the Army's transformation effort, especially as it relates to increasing levels of intrinsic motivation, commitment, productivity and well-being. Spiritual leadership is a causal leadership theory for organizational transformation designed to create an intrinsically motivated, learning organization. The theory of spiritual leadership is developed within an intrinsic motivation model that incorporates vision/faith, altruistic love, theories of workplace spirituality and spiritual survival. Operationally, spiritual leadership comprises the values, attitudes, and behaviors that are necessary to intrinsically motivated one's self and others so they have a sense of spiritual survival through calling and membership. Thus, spiritual leadership proposes that hope/faith in the organization's vision keeps followers looking forward to the future and provides the desire and positive expectation that fuels effort through intrinsic motivation.

**Method. Sample and procedure.** Initially 200 individuals located in the aviation squadron were to be surveyed. Second survey was administrated approximately 5 months later and combined with the first survey to test the SLT structural equation causal model. **Measures.** The three dimension of spiritual leadership, two dimension of spiritual survival and organizational commitment and productivity were measures using survey question developed especially for SLT research. The items were discussed with practitioners concerning their face validity, and have been pretested and validated in other studies and samples. The questionnaire utilized a 1-5 (from strongly disagree to strongly agree) response set. Scale score were calculated by computing the average of the scale items. The seven scale exhibited adequate coefficient alpha reliabilities between .83 and .93.

**Result. Test of spiritual leadership causal model.** One of the most rigorous methodological approaches in testing the validity of factor structures is the use of confirmatory (i.e. theory driven) factor analysis (CFA) within the framework of structural equation modeling. SEM is particularly valuable in inferential data analysis and hypothesis testing, since it differs from common and components (exploratory) factor analysis in that SEM takes a confirmatory approach to multivariate data analysis. This model is a non-recursive model in that intrinsic motivation theory has feedback loops (between vision and altruistic love and from vision to altruistic love to hope/faith and back to vision). **Common method variance issues.** CMV may be an issue for studies where data for the independent and dependent variable are obtained from a single source. SEM is more flexible than marker variable analysis because it is capable of testing unrestricted method variance causal model since SEM allows the error terms to be inter-correlated without being fixed or constrained as in CMV.

Spiritual leadership offers promise as a springboard for a new paradigm for leadership theory, research and practice given that incorporates and extends transformational and charismatic theories, and avoid the pitfalls of measurement model misspecification. One are that seem to have been effectively addressed in the Army but is still problematic in most other organization is the role of religion in the workplace and its relationship to spirituality. Viewing workplace spirituality through the lens of religious traditions and practice can be divisive in that, to the extent that religion views itself as the only path to God and salvation. Translating religion of this nature into workplace spirituality can foster zealotry at the expense of organizational goals offend constituents and customers, and decrease morale and employee well-being.

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