



Development of a spirituality measurement scale

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Abstract

The study aims at formulating a reliable and universal spirituality measurement scale (SMS) to meet the empirical study needs of management/academic scale development in spirituality. The data were collected on a structured questionnaire from the 443 students of University of Delhi, India on a 5 point Likert's scale. Spirituality Measurement scale was found to be reliable with Cronbach's alpha score of 0.94. Data collected through structured questionnaire was analysed using exploratory factor analysis (EFA). It was found that spirituality has five dimensions, namely; Transcendence, Self Engagement, Self Efficacy, Self Awareness, and Service towards others.

Keywords Spirituality · Transcendence · Self awareness · Self efficacy · Self engagement · Service towards others

Introduction

The fact is that a lot of spirituality scales exist, but most of them are religion dominated and also addressing the issues of the western world, as majority of the scales have been developed in the west. However, in India very few, spirituality scales exist, and most of them are adapted from existing ones. Therefore, an attempt has been made to develop a spirituality scale keeping in mind the context of Indian culture, beyond any religion. This study aims at formulating a reliable spirituality measurement scale to meet the empirical study needs of management/academic for scale development in spirituality. The intent is also to capture the universal basis to spirituality so that it may reflect the ability of an individual to view life from a broader perspective. The attempt is to measure experience rather than particular belief so that they transcend the boundaries of any particular religion. According to Singh and Makkar (2015), Spirituality needs further clarification in terms of understanding the fundamental characteristics of what a person's spiritual life might

consist of? Who determines which fundamental characteristics do or don't pertain to spirituality? How can we make visible or perceive something that is by nature elusive? Generally, studies have acknowledged that the phenomenon of spirituality relates to people's beliefs, moral-values, attitudes, and actions. Understanding these characteristics more specifically is where the academic study of spirituality becomes complex. Thus, the paper is an attempt to develop a spirituality measurement scale which would not be restricted to any one religion, which may be used for measuring the level of spirituality of individuals.

Review of Literature

The term spirituality has its origination from the Latin word, spiritus, "as in breath of life" (Moxley 2000). Spirit is the very essential of the human existence, a human occurrence. The most exigent task for any researcher engaged in academic or empirical research study in spirituality is framing a working definition. Most of the research conducted in the field of spirituality in relation with management, have not been able to come with a common comprehensive definition of spirituality, therefore it still remains a matter of study. The semantic interpretation of the word spirituality is clear; however its meaning in operational terms is indefinite. Since ancient times, the concept of spirituality was closely associated with religious viewpoint, practices and convictions. However, the present conceptions on spirituality are much broader in nature. Today's viewpoint on spirituality focuses on the intrinsic domain of an individual rather than to the objective of material substance that one can point towards and measure. In other words,

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spirituality is to do with soul consciousness which an individual experiences surreptitiously in his/her subjective awareness. Makkar and Saini (2016) state that Spirituality is “an intrapersonal and metaphysical relationship with a higher power or transcendent force which provides motivation, purpose, and a sense of connectedness with others.” Spirituality also has more to do with our qualitative or affective experiences and relates to our value system that we hold most dear, our wisdom of who we are, where we come from, how would we like to be remembered, why we are and the journey towards finding an answer to the one stop question of life, that is “who am I?”. The meaning and purpose that we visualize in our life and beyond, a sense of connectedness to ourselves and the world around us. In addition to this, several research studies like Young-Eisendrath and Miller (2000) have also defined spirituality as “a universal human experience, in terms of connectedness or relatedness.” Connectedness with oneself is expressed by aspects such as authenticity, inner harmony/ inner peace, consciousness, and searching for meaning in life.

In order to develop the Spirituality measurement scale, previously developed scales were duly referred. The literature documents that various attempts that have been made at evaluating spirituality (e.g., Ashmos and Duchon 2000; Beazley 1998; Delaney 2003; Gomez and Fisher 2003; Hill 2005; King and Crowther 2004; Koenig et al. 2001; MacDonald 2000; Piedmont and Leach 2002). Still, there is a clear lack of a theoretical perspective upon which many of these studies have been based (Berry 2005). A number of studies also confuse spirituality and religion, which, although related, are not synonymous (Zinnbauer et al. 1999). The dimensions studied in review of literature may be summarized in Table 1.

The review of literature emphasized on providing some clarity on the definitional aspect of spirituality and its origination. As pointed out by Roof (1999) spirituality is “a source of values and meaning beyond oneself, a way of understanding, inner awareness, and personal integration” (p. 35). Further the various

scales already developed on spirituality were studied; Namely, Daily Spiritual Experience Scale (DSES) Underwood et al. (2002) which is a 16-item self-report measure designed to assess ordinary experiences of connection with the transcendent in daily life. It includes constructs such as awe, gratitude, mercy, sense of connection with the transcendent and compassionate love. It also includes measures of awareness of discernment/ inspiration and a sense of deep inner peace. Howden (1992) developed the Spirituality Assessment Scale (SAS) by reviewing philosophical, psychological, sociological, theological and nursing literature. The four sub-scales of the SAS that were developed are Purpose and Meaning in Life, Interconnectedness (connectedness to others and to the environment), Innerness (inner peace and inner strength in times of difficulties) and Transcendence. Beazley’s (1998) theory of the manifestations of spirituality revolves around two main elements: definitive dimensions that are essential and exclusive to spirituality and correlated dimensions that are not exclusive but contribute to the definition of spirituality. “Living a faith relationship with the Transcendent” and “engaging in prayer, meditation, or other communication involving the Transcendent” (Beazley, p. 102) were defined as the definitive dimensions—the essential aspects of spirituality. Through these and many more spirituality instruments that have been developed, it was clear that most of the studies have been conducted in the west, and has some kind of religious dominance. So there was confusion or overlapping of spirituality and religion, which existed in most of the spirituality scales. Therefore, there was a need to develop an instrument which was beyond any religion, and could be used by all irrespective of their religion.

Hypothesis

In the null format the hypothesis (H0) of the current study is that a consistent and suitable spirituality measurement scale

Table 1 Dimensions of spirituality based on review of literature

Scale	Author	Dimensions
SHALOM	Fisher (2010)	(1) Personal; (2) Environmental; (3) Communal; and (4) Transcendental
Dimensions of Spirituality: A Framework for Adult Educators	Fenwick and Lange (1998)	(1) life and death; (2) soul and self; (3) cosmology; (4) knowledge; (5) the “way”; (6) focus; (7) practices of spirituality and the role of others; and (8) responses.
Daily Spiritual Experience Scale (DSES)	Underwood et al. (2002)	(1) Strength and Comfort; (2) Perceived Divine Love; (3) Inspiration or Discernment
Developing and Validating a Questionnaire to Measure Spirituality: A Psychometric Process	Parsian and Dunning (2009)	(1) Importance of spiritual beliefs; (2) Self-awareness; (3) Environmental awareness; (4) Relationships; (5) Spiritual needs; (6) Spiritual experiences
Spirituality Assessment Scale (SAS)	Beazley (1998)	(1) Living the faith relationship; (2) Prayer or meditation; (3) Honesty; (4) Humility; (5) Service towards others
Spirituality Assessment Scale (SAS)	Howden (1992)	Unifying Connectedness, Purpose & Meaning in Life, Innerness & Transcendence (non-religious orientation)

cannot be developed independently to serve the empirical study needs of commerce and other disciplines.

Method

For the purpose of this study exploratory research has been used. It is a valuable means of finding out what is happening, to seek, to ask questions, when little theory / gap in theory is available, for asking questions and to assess the phenomena in a new light. It is particularly useful when the researcher makes an attempt to clarify the understanding of a problem. There are three principle ways of conducting the exploratory research: a search of the literature, talking to experts in the subject and conducting focus group interviews. The objective of exploratory research is to identify key issues and key variables. For example, one outcome might be a better system of measurement for a specific variable. This study can be termed as exploratory since the keys variables have not been defined in advance but have been developed through review of literature, talking to experts in the subject and addressing open-ended questions through emails. Once the variables have been identified they are converted/modified into measurable items to test the relevance of the scale development and its usability. The various steps that were followed in scale development are as follows:

The first step was to explore the literature base that was available in order to gauge the complete understanding and dimensions of spirituality.

The next step was exploration and establishment of the definition and interpretations of spirituality and its dimensions from various experts in related fields through email and face to face interviews. For this purpose subjective open ended questions were framed and were used to collect information for further refinement. The experts not only included academicians having in depth knowledge in the field of psychology, spirituality, management, philosophy but also those who practice and teach spirituality, since spirituality as a concept cannot be limited to just academics. In order to make a holistic exploration, several face to face interviews were also conducted with students to understand their version of spirituality and its influence into their lives. The common question asked from experts as well as students was “Give me your understanding, as to what you think about spirituality/what spirituality means to you/ how has it helped you, if it has/ what according to you are the dimensions of spirituality.”

On the basis of the responses that were received from 11 experts, the definition of spirituality was formulated and a total of 60 initial items were developed. These items were

submitted to the same panel of experts as earlier, for face validity, which were approved with certain changes, one of which was inclusion of a dimension related to “service towards others”, as it was found to be missing.

On the basis of this information a set of preliminary items was designed for the purpose of articulation of the variables to be measured and how they are to be measured based on a theory of the scale. The methodology used for testing, analysis and development of the Spirituality Measurement Scale (SMS) was exploratory factor analysis.

Data Collection

The University of Delhi is one of the largest universities in India. At present, there are 16 faculties, 86 academic departments, 77 colleges and 5 other recognised institutes spread all over the city, with 132,435 regular students which include 114,494 undergraduates and 17,941 postgraduates. There are also 261,169 students in non-formal education programme, of which UG students make up 258,831 where as PG students are 2338 in number.

Determining the sample size and dealing with non-response biasness is very essential for a quantitative research design (Sahi and Singh 2016). On the basis of the calculations done, the estimated sample size for students that was calculated was 384. The university was divided on the basis of north zone and south zone campus, quota sampling technique was used for data collection.

Data Analysis and Findings

The most critical and crucial task after collecting all the data required was to check for any errors which could have crept in the data set and then formatting the data set as to be utilized for analysis purpose. IBM SPSS 23 (Statistical Package for the Social Sciences), was used for data analysis which included the reduction of factors using exploratory factor analysis and for the reliability the Cronbach's Alpha was calculated and sample adequacy was tested on KMO and Bartlett's Test (Madan and Jain 2015).

Out of the 443 survey responses collected according to the research design, there were 27 incomplete responses which had missing data issue, these respondents were those who did not answer more than 10% of the questions in the questionnaire set, and were, therefore, eliminated (Hair et al. 2010). On further analysis, for variability in responses or unengaged responses, 18 respondents were eliminated as they reported variability of less than 0.30. The methodology used was to calculate the standard deviation of the responses of each candidate. This was done in order to remove the

unengaged responses from the data set to have a filtered data set for analysis.

The next step was to check whether the data set is normal. A normality test was used to determine whether sample data has been drawn from a normally distributed population (with some tolerance). The assessment of data normality is, however, an ambiguous work, wherein one simplified way to check normality is not provided.

The researchers have commonly advised those research studies having data set of number of respondents greater than 300, to check for skewness and kurtosis value greater/lesser than ± 2 . Any value which is greater/lesser than ± 2 indicates non-normality, the kurtosis values greater than 2 signifies that most of the respondents have answered the questions in a similar manner, and a value less than 2 denotes that respondents differ entirely in answering to a particular question (Gaskin 2013a). On assessment of the data set, the researcher found that some of the variables were having values greater than 2, and those variables were kept under observation while conducting EFA so that any problem in case of assessing communality could be tackled by deleting these data variables (Gaskin 2013b).

Exploratory factor analysis (EFA) was undertaken in order to abridge the study composition, eliminate gratuitous variables, and recognize principal engagement drivers (Pallant 2005). The first point of contention which needs to be addressed is the number of sample respondents required to carry out EFA. General guides include, Tabachnick and Fidell (2007) rule of thumb that suggests having at least 300 cases for factor analysis.

The caveats also point towards inspection of the correlation matrix; Tabachnick and Fidell (2007) have recommended the inspection of the correlation matrix (also called Factorability of R) for correlation coefficients over the cut-off point of 0.30. Hair et al. (1995) categorised these loadings using another rule of thumb as ± 0.30 = minimal, ± 0.40 = important, and ± 0.50 = practically significant. For example, if the factor correlation is greater than 0.4, then the factors account for 40% of the relationship, within the data.

Before checking for the extraction of factors, prior tests should be carried out in order to assess the appropriateness of the respondent data for EFA. These tests comprise of the Kaiser – Meyer – Olkin (KMO) test (Kaiser and Rice 1974) and Bartlett's test of Sphericity (Bartlett 1954).

A preliminary examination of the correlation matrix depicted that several of the items were correlated (above 0.3) with a KMO value of 0.941, being more than the suggested value of 0.6 (Tabachnick and Fidell 2007), and for Bartlett's test of Sphericity (Bartlett 1954), the value should be significant ($p < 0.05$) for factor analysis to be suitable.

On extracting the 50 items based on extraction method PCA, and rotation method Varimax, the initial rotation based on Eigen values greater than 1 extracted 9 factors. However, in

this case, the factor structure was more pronounced, and most of the variables loaded as desired. Though, the loading based on PAF extraction was more or less producing the same structure, the researcher deemed the PCA extraction to be more exact as in this case the 9 factors were explaining 62% of the total variance, whereas in case of PAF it was 53%.

After the initial inspection of the data set, careful scrutiny of each database was required. Since, the face validity of the EFA was coming out stronger in case of extraction based on PCA; the researcher extended the research based on PCA. Then another series of extraction was done based on fixed number of factors. Out of the total of 9 factors extracted based on the Kaiser Criterion (Kaiser 1960), i.e., Eigen Values greater than 1, 7 factors were showing face validity. The remaining 2 factors were having variables less than 3, and thus scattered. It has been advocated by varied academicians, that if logic cannot be derived out of Kaiser Criterion, then multiple criteria should be used in order to extract factors based on fixed number of factors (Costello and Osborne 2005). Thompson and Daniel (1996, p.200) also advocated that the “simultaneous use of multiple decision rules is appropriate and often desirable”. Hair et al. (1995) envisage that the mainstream of factor analysts normally employ multiple criteria. In the same context, the researchers also deemed appropriate to conduct factor analysis based on fixed number of factors. According to Kaiser Criterion 5 factors were extracted. Thereafter, the close perusal of the Scree Plot suggested that these factors extraction could normally be the best option (Chatterjee et al. 1991). According to the cumulative percentage of variance criterion, which envisages that for social sciences 50–60% of variance explained suffices and in this case these 5 factors were amounting to 52% of the total variance (Hair et al. 1995; Pett et al. 2003), the fixed extracted factors emerged to be true. The next step was to check for the anti-image matrix, which depicts the KMO value of each item. Preferably each of the value should be greater than 0.6 (Tabachnick and Fidell 2007).

The next step was to check the cross-loading in order to assess the unidimensionality of the factors, an optimal structure is established only when all the variables have high loadings on one single factor (Hair et al. 2010). If cross-loading exist for a variable on multiple factors, that variable is a candidate for deletion, further the test of unidimensionality is that each summated scale should consist of item loadings highly on one factor (Nunnally 1979). Significant cross loading can be checked by following the caveat that the difference between the highest loading of a variable into one factor and that of second highest loading into some other factor should be greater than 0.2. On closer perusal of the Rotated Component Matrix, it was established that there were a few cases of cross-loadings, and were, therefore, removed.

It was further required to interpret the Rotated Component Matrix. It was assessed that face validity was established,

when extraction was done on PCA based on fixed number of factors to be extracted at 5, and rotation technique to be used as Varimax. When a satisfactory factor solution was obtained, the labelling of the factors was carried out. This process is about assigning the meaning to the factor structure. After examining all the significant variables for a particular factor, the factors were named by following the requirement of accurate reflection of the variables on the factor.

Table 2 shows the factor loadings of each variable along with their names.

To assess the scale reliability, internal consistency of each dimension was analyzed. To assess the internal reliability, Cronbach's alpha was employed. When the Cronbach's alpha score is greater than the minimum recommended value of 0.70, it represents a strong item co-variance. The Cronbach's alpha score for each factor identified, as mentioned in Table 3, since all the factors have Cronbach's alpha greater than 0.70, therefore, they all were considered for Split Half Tests.

To conclude, this study proposes the following definition of spirituality, along with five dimensions namely; Transcendence,

Table 2 Factor Loadings of all the five factors

S. No.	Items (Variables)	Factor loadings
1	Self Engagement (ENG)	
1.1	Meditation	0.741
1.2	Yoga	0.597
1.3	Reading books about self development	0.548
1.4	Spiritual singing	0.635
1.5	Chanting Mantras	0.609
1.6	Attending spiritual workshops/activities/events	0.607
2	Service towards others (STO)	
2.1	I give my time to help others.	0.773
2.2	I sacrifice my personal ego needs to do what best serves' others.	0.680
2.3	I give my material resources to help others.	0.649
2.4	I am generally humble to others.	0.635
2.5	Compassion comes naturally to me.	0.568
3.	Self Efficacy (SE)	
3.1	I have a meaningful life.	0.590
3.2	I have confidence in my actions.	0.673
3.3	Most of the time, I have a positive approach.	0.518
3.4	If I could live my life again, I would change nothing.	0.575
3.5	I am a self-content person.	0.657
3.6	The progression of my life is as expected.	0.693
3.7	So far, I have got everything I deserve.	0.659
3.8	I am satisfied with my life, as a whole.	0.689
4.	Transcendence (T)	
4.1	Creates an atmosphere Of positivity.	0.741
4.2	Promotes peaceful living.	0.746
4.3	Helps in reducing depression.	0.759
4.4	Relates to a person's search for finding greater meaning in one's existence.	0.711
4.5	Is what keeps people anchored to happiness.	0.703
4.6	A holistic approach that embraces all, under one super natural being.	0.629
4.7	A belief, that we all derive the supreme power from one common source.	0.668
4.8	Helps in realizing one's higher purpose in life.	0.711
4.9	Bowing before his will without any doubt	0.521
4.10	Spirit of keep going and not giving up.	0.640
4.11	Promotes togetherness among all beings.	0.660
4.12	Helps in having clarity in life.	0.709
4.13	Enhances healthy lifestyle.	0.620
4.14	Working together to resolve conflicts in a positive way.	0.678
4.15	Utilizing the power of the rational mind for the benefit of the society.	0.676
4.16	Being connected with divinity.	0.752
4.17	Spreads the message of unity in diversity.	0.697
4.18	A feeling of oneness with all living beings.	0.686
4.19	The awareness of my spirit.	0.652
5.	Self Awareness (SA)	
5.1	I have awareness of my career.	0.729
5.2	I have awareness of my aspirations.	0.776
5.3	I am aware about my desires.	0.756
5.4	I am aware about my daily needs.	0.739
5.5	I have awareness of my body.	0.747
5.6	I have awareness of my family.	0.702

Table 3 Cronbach’s alpha score of factors

Factors	No. of Items Summated	Cronbach’s Alpha
Self-engagement	6	0.761
Service towards others	5	0.740
Self-efficacy	8	0.806
Transcendence	19	0.951
Self-awareness	6	0.942

Self Engagement, Self Awareness, Self Efficacy, and Service towards others which are further clubbed under Core Dimension and Correlated Dimension, respectively.

Defining Spirituality Spirituality is defined as a transcendental relationship with the higher being, leading us to the path of self awareness and self engagement, which enables us to serve others for the benefit of society at large.

Core Dimension The theoretical definition of spirituality proposed constitutes of a core dimension of spirituality and certain correlated dimensions of spirituality. The term core dimension refers to “The part of something that is central to its existence or character.” Therefore, in terms of spirituality it proposes that core dimension of Spirituality which exhibits specific behavioral dimension essential to the perception and is exclusive of it. This dimension constitutes Transcendence and Self Engagement, out of the five dimensions of spirituality.

Correlated Dimensions This constitutes Self Awareness, Self Efficacy and, Service towards others. These factors together contributes towards correlated dimension of spirituality,

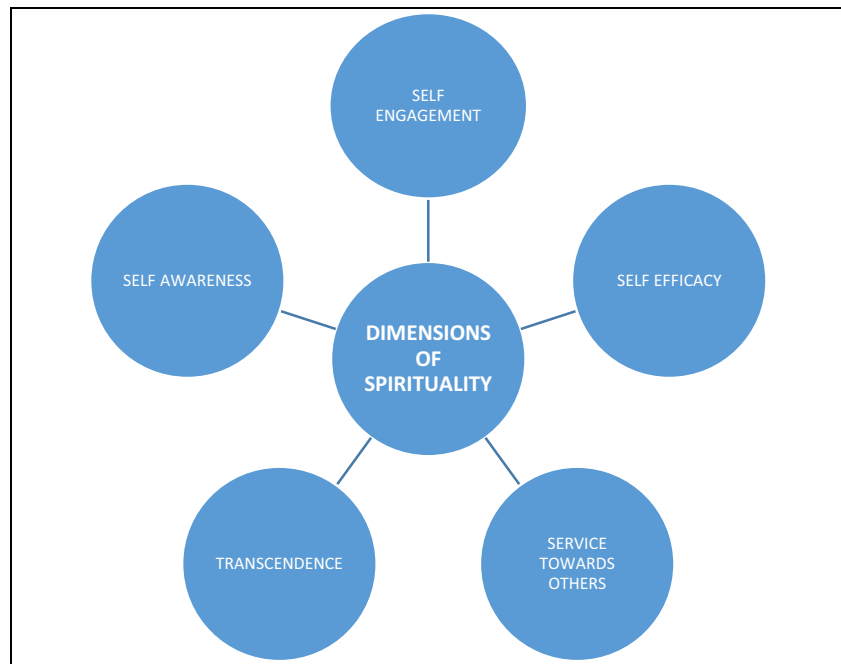
which explains that these dimensions are not limited to spirituality but still contribute to its definition. Such dimensions cannot be called as “core” because they may be correlated with influences other than spirituality. Therefore, they are a measure of spiritual condition only when the core dimensions are also present.

The principal component analysis states that the Core dimension consisting of two factors namely Transcendence (T) and Self Engagement (ENG) has the highest factor loading and together accounted for 37.17% of the variance. The three correlated dimensions of spirituality that can be measured by the Spirituality Measurement scale are Self Awareness (SA), Self Efficacy (SE) and, Service towards others (STO) together accounted for 29.26% of the total variance.

Conclusion

It can be well concluded from this study that spirituality can holistically be covered into the five dimensions consisting of 44 items namely; transcendence, Self Engagement, Self Efficacy, Self Awareness, and Service towards others (as shown in Fig. 1), thereby rejecting the Null hypothesis, that a Spirituality Measurement scale cannot be developed. This study has divided spirituality into two dimensions viz., Core dimension of Spirituality which includes two factors namely; Transcendence and self engagement, and the correlated dimension of spirituality which includes Self awareness, self efficacy, and service towards others. Core Dimension is referred to as “the part of something that is central to its existence or character,” and correlated dimension is something which is

Fig. 1 Dimensions of spirituality



independent of the core dimension of spirituality since it is possible for someone to manifest one or all correlated dimensions but not perceived to be spiritual.

A Spirituality Measurement Scale has been developed to measure the level of spirituality in an individual. However, it is to be stated that there is nothing like “not spiritual”, as the researcher believes and reinstates the fact that every individual is a spiritual being, it is, however, the awareness of one’s own spirituality that differentiates between two individuals.

Recommendations

The integrity of any research depends on the accuracy of the measures used, especially when exploring complex phenomena such as spirituality. The results of the validity testing on the spirituality measurement scale indicated that it is an accurate measure of spirituality. The processes used to develop the scale were rigorous and suitable. However, to further strengthen the rigour of the scale the researchers recommend undertaking validation test of the scale so developed and structural equation modelling (SEM) with diverse population to support the generalization of the scale. A comparative analysis can be conducted among various institutions providing holistic education and other institutions to document and encourage universities across India for transformation in the higher education system.

Compliance with Ethical Standards

Conflict of Interest The author(s) declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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