Abstract

Spiritual Intelligence (SI) is an emerging concept in the realm of spirituality. In the current scenario of human development, there is a dire need to integrate spirituality into management, education, research and technology. In fact, a proper convergence of spirituality with the research performance of university teachers may lead to the development of a strong academic learning process. Since SI encompasses a multitude of the dimensions as its construct, a suitable and effective multi-criteria decision framework is proposed to measure SI. The Analytic Hierarchy Process (AHP) has been established as a robust multi-criteria decision-making tool and thus, will be apt for generating SI index which is termed as spiritual quotient (SQ) by considering the SI construct. An illustrative case example is also considered to show the applicability of the proposed decision framework.

1. Introduction

Innovation and research constitute a very important factor in the academic development and performance of a university teacher. It is believed that research and teaching go hand in hand. Research is an ongoing process and it helps in refining the teaching performance in multiple ways. Hence, a proper evaluation and assessment of research performance is a key to improving both teaching and research performances of a university teacher. There are various factors that affect research performance of university teachers. Several tools and tests have been designed and used to assess these factors and thereby evaluate the overall intelligence of the academicians. However, it has been observed that all these tests evaluate only the rational and mental performance of teachers. Tests of Intelligence Quotient (IQ) and Emotional Quotient (EQ) do not address the issues of creativity and complexity of human intelligence and hence, ignore the overall research potential of a teacher. In reality, factors which affect...
research performance of university teachers draw largely from the mental world and the creative vitality of human evolution [1].

<table>
<thead>
<tr>
<th>Nomenclature</th>
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<tbody>
<tr>
<td>IQ</td>
<td>Intelligent Quotient</td>
</tr>
<tr>
<td>EQ</td>
<td>Emotional Quotient</td>
</tr>
<tr>
<td>SQ</td>
<td>Spiritual Quotient</td>
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<tr>
<td>SI</td>
<td>Spiritual Intelligence</td>
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<tr>
<td>AHP</td>
<td>Analytic Hierarchy Process</td>
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Spiritual intelligence (SI) enables people to take personal responsibility of meaning, and value, and to create new access to achieve and to use it. It transforms them to make the best use of whatever situation they are in. It gives people opportunity to delve into the deeper recesses of the mind and provides integrity and intelligence of the self. It also fosters in them a wholesome and holistic idea of life. Das et al. [2] assessed the performance of technical institutions based on multiple criteria. In their work, the performance assessment was limited to the technical institutions and the framework does not consider criteria of spiritual intelligence thus limit the overall performance assessment. Kanyama [3] analyzed the effect of the average level of intelligence on different measures of the quality of institutions. This research concludes that the countries with higher levels of human capital enjoyed better institutions than those with lower levels. This research is, however, limited as it does not consider the significance of SI on the human capital of different institutions. Upadhyay [4] has devised new dimensions of SI to identify the impact of SI on the research performance of the teachers in the higher education. The assessment of SI can provide an objective pathway into the teacher’s inner life world that is so intimately related to intellectual development which in turn directly affects the research performance. This may provide a proper linkage between objective-disciplinary centered academic learning and subjective-reflective self-development learning.

In this paper, an attempt has been made to measure the spiritual intelligence of the university teachers by adopting Analytic Hierarchy Process (AHP). The paper is arranged as follows: section 2 discuss the spiritual intelligence and its construct. Section 3 details out the framework to measure spiritual intelligence in a structured manner. In section 4, the discussion and analysis are presented and finally in section 5 conclusion is outlined.

2. Spiritual Intelligence

In the early part of the 20th century, IQ gained immense popularity for evaluation and assessment of an individual’s intelligence. IQ correlates with job performance, socioeconomic advancement and ‘social pathologies’. However, it does not measure all the intricacies of intelligence such as creativity [5]. IQ catered to the material and mental pursuits of a researcher. It failed miserably to answer the call of creativity in the human spirit. In mid-90s Daniel Goleman popularized the notion of another quotient – EQ, emotional intelligence quotient [6]. EQ allows a person to judge what situation he is in and to behave appropriately within the boundaries of the situation, allowing the situation to guide him [7]. Over the past decade, it has been suggested that even EQ is not adequate to deal with the situations that individuals face in their personal and professional lives. This is because EQ though enables one to adjust one’s feelings according to the situation, it does not have the power to transform the negative feelings into positive ones [5].

As research is an ongoing activity, teachers confront both positive and negative feelings in the process. How to overcome negative feelings, setbacks and failures in research activities is a major question that needs to be addressed. Danah Zohar [8] answered this question by propagating the concept of spiritual intelligence. Spiritual intelligence calls for multiple ways of knowing and for the integration of the inner life of mind and spirit with the outer life of work in the world. It can be cultivated through questioning, inquiry and practice. Spiritual experiences may also contribute to its development, depending on the context and means of integration [8]. SI is necessary for discernment in making spiritual choices that contribute to psychological well-being and overall healthy human
development [1]. Hence, one can see that spiritual intelligence is crucial for a researcher to grow and flourish in an academic domain. Emmons [9] regards SQ as a frame which contains prominent ability for solving problems by spiritual resources. However, the view of Danah Zohar and Ian Marshall [8] has been recognized to be most convincing. They propounded twelve dimensions of spiritual intelligence, see Table 1.

Table 1. Twelve dimensions of spiritual intelligence

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>High self-awareness (HSA)</th>
<th>Spontaneity (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field independence (FI)</td>
<td>Humility (H)</td>
<td></td>
</tr>
<tr>
<td>Compassion (C)</td>
<td>Celebrating of diversity (CD)</td>
<td></td>
</tr>
<tr>
<td>Being vision and value led (BVV)</td>
<td>Tendency to ask why (TAW)</td>
<td></td>
</tr>
<tr>
<td>Positive use of adversity (PUA)</td>
<td>Holism (HM)</td>
<td></td>
</tr>
<tr>
<td>Sense of vocation (SV)</td>
<td>Ability to reframe (AR)</td>
<td></td>
</tr>
</tbody>
</table>

3. Decision Framework

The overall framework to measure the spiritual intelligence of the University teachers is mentioned in Figure 1. The framework adopts AHP to measure the SI. Generally, AHP consists of three major principles – establishment of hierarchy framework based on criteria, analysis of the priority for the alternatives and verification of the consistency in the judgments [10-12]. Formulation of the problem in terms of hierarchy framework is the first step of AHP, with the top level representing overall objectives or goal, the middle levels representing criteria and sub-criteria, and the lowest level projecting the decision alternatives.

Once a hierarchy framework is constructed, users are requested to set up a pairwise comparison matrix at each hierarchy and a comparison is done by using a scale pairwise comparison as shown in Table 1. Finally, in the synthesis of priority stage, each comparison matrix is then solved by an eigenvector method to determine the criteria importance and alternative performance [12].

The hierarchical structure and alternatives utilized for the framework are shown in Figure 2.
For each element of the hierarchy structure all the associated elements in low hierarchy are compared in pairwise comparison matrices as follows:

\[
A = \begin{bmatrix}
1 & \frac{w_1}{w_2} & \cdots & \frac{w_1}{w_n} \\
\frac{w_2}{w_1} & 1 & \cdots & \frac{w_2}{w_n} \\
\vdots & \vdots & \ddots & \vdots \\
\frac{w_n}{w_1} & \frac{w_n}{w_2} & \cdots & 1
\end{bmatrix}
\]  

(eq. 1)

Where \(A\) = comparison pairwise matrix, \(w_1\) = weight of element 1, \(w_2\) = weight of element 2, \(w_n\) = weight of element \(n\). In order to determine the relative preferences for two elements of the hierarchy in matrix \(A\), an underlying semantical scale [10] is employed with values from 1 to 9 to rate the criteria and alternatives, see Table 2.

Some methods like eigenvalue method are used to calculate the relative weights of elements in each pairwise comparison matrix. The relative weights \((W)\) of matrix \(A\) is obtained from the following equation:

\[
(A - \lambda_{max} I) \times W = 0
\]  

(eq. 2)

Where \(\lambda_{max}\) = the biggest eigenvalue of matrix \(A\), \(I\) = unit matrix.

The principal eigenvector \((\lambda_{max})\) of the above matrix represents the relative weights of the decision criteria. The normalized weight or importance of the \(i^{th}\) criteria \((W_i)\) is calculated as:

Divide each entry \(A(a_{ij})\) by the total in its column.

\[
k_{ij} = \frac{a_{ij}}{\sum_{j=1}^{n} a_{ij}}
\]  

(eq. 3)

Total each entry in a row and average it.
\[ N_i = \frac{\sum_{j=1}^{n} a_{ij}}{n} \]  

(eq.4)

Table 2. Preferences Scale

<table>
<thead>
<tr>
<th>Preferences expressed in numeric variables</th>
<th>Preferences expressed in linguistic variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equal importance</td>
</tr>
<tr>
<td>3</td>
<td>Moderate importance</td>
</tr>
<tr>
<td>5</td>
<td>Strong importance</td>
</tr>
<tr>
<td>7</td>
<td>Very strong importance</td>
</tr>
<tr>
<td>9</td>
<td>Extreme importance</td>
</tr>
<tr>
<td>2,4,6,8</td>
<td>Intermediate values between adjacent scale values</td>
</tr>
</tbody>
</table>

The consistency property of matrices is checked to ensure that the judgments of decision makers are consistent. The consistency index (CI) of a randomly generated reciprocal matrix shall be called to the random consistency index (RI), with reciprocals forced. An average RI for the matrices of order 1–15 was generated by using a sample size of 100. The last ratio that has to be calculated is consistency ratio (CR). Generally, if CR is less than 0.1, the judgments are consistent, so the derived weights can be used. Otherwise, the decision-maker has to reconsider the entries of pair-wise comparison matrix. To check the consistency in pair-wise comparison judgment, CI and CR are calculated using the following equations:

\[ CI = \frac{\lambda_{max} - N}{N - 1} \]  

(eq.5)

\[ CR = \frac{CI}{RI} \]  

(eq.6)

where RI is random consistency index and its value can be obtained from Table 3.

Table 3. Random Consistency Index

<table>
<thead>
<tr>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0</td>
<td>0</td>
<td>0.58</td>
<td>0.9</td>
<td>1.12</td>
<td>1.24</td>
<td>1.3</td>
<td>1.41</td>
<td>1.45</td>
</tr>
</tbody>
</table>

3.1. An Illustrative Case Example

The proposed decision framework is employed to measure the SI of the five university teachers. A survey based on the features of [13] was conducted to generate the data for the faculty (University teachers) w.r.t the criteria/dimensions mentioned in the framework. The survey questionnaire included some direct questions related to spiritual intelligence. A sample of the survey is shown in figure 3. The select survey questionnaire contained around 20 questions. The answers were expected in terms of degrees/levels assigned on the right side. These degrees/levels were used to identify the importance of the criteria. The weight of the respective criteria/dimensions were computed...
based on expert committee judgment.

![Table 4. Evaluation of candidates to generate SQ using AHP](image)

The relative importance and individual priority have been calculated using AHP [10]. The results based on AHP expert grade method are shown in Table 4.

4. Discussion

The priority index as generated by AHP is the measurement of the spiritual intelligence which is termed as spiritual quotient (SQ). SQ of the candidates (C1, C2, ..., C5) shows (Fig.4) that C1 retains the first position with the highest score. Similarly, C3 is also able to secure second place. C4, on the other hand, gets the lowest score.
Though C1 secures the first position with the highest score of SQ, it may be inferred from the table 4, that the candidate’s score on Spontaneity (S) a dimension of SQ is less than that of C2. In a situation where more spontaneous decisions need to be taken C2 happens to be better equipped than C1. Similarly, C1’s score on Celebration of Diversity (CD) is lower than that of C5. In the context of the current multicultural environment, the need for adaptive employees has increased manifold, who not only accepts and accommodates diverse cultures but also celebrates it by using it wisely. In this respect, C5 is better positioned to work in those domains where diversity characterizes the work environment. Another dimension of SI is Ability to reframe which enables a person to view a problem from multiple perspectives without integrating subjective biases to it. In this respect, C3 may prove to have better problem-solving skills than C1. However, since all the twelve dimensions contribute to the total score of SQ, the overall score of C1 is indicative of the fact that C1 has higher levels of SQ than the others and hence in totality C1 is a better candidate to work in an educational-research ecosystem of a University than the others. Since the dimensions cover exploratory construct of spiritual intelligence it is expected that SQ as generated and computed by AHP provides quantitative benchmark index to evaluate university teachers’ level of spiritual intelligence. This may prove helpful to the university management to create a sound educational research ecosystem.

5. Conclusion

Through this research, the authors have tried to bring out the multi-criteria decision framework considering different dimensions/criteria to measure spiritual intelligence. The proposed framework adopts AHP technique to generate spiritual intelligence index i.e. spiritual quotient (SQ). The current research study is one of its kind as none of the earlier research works have studied such an ecosystem to measure the Spiritual Intelligence in the academic sector. By benchmarking university teachers on their SQ level, the university management may motivate an efficient educational research environment. The paper will open new spectrum for the researchers and scholars to exploit and extend the current research work in various sectors of interest.

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References