THE INFLUENCE OF LEADERSHIP VALUES ON CULTURE VALUES: A STRUCTURAL EQUATION MODELLING APPROACH

(ZAINOL MUSTAFA, MOHD RASHID AB HAMID, NUR RIZA MOHD SURADI, FAZLI IDRIS, MOKHTAR ABDULLAH & ABDULLAH IBRAHIM)

ABSTRACT

The importance of core values that upheld the leadership and cultures are very well-understood and these criteria are important in determining the organisational success. Thus, this article examines the impact of leadership onto the organisational culture through value-based indicators. The study was conducted at one of the universities in the East Coast of Malaysia. An instrument was developed and adapted from previous study and pilot tested. 400 questionnaires were administered to the respondents resulting of 153 questionnaires were returned. The data were coded in Predictive Analytics Software (PASW) version 18.0 and AMOS software was used to analyse the hypothesised model using Structural Equation Modelling (SEM) approach. The result of the modelling suggests that the revised hypothesised model yields a fit statistics that are adequate with \( p \)-value = 0.078, CFI = 0.99, GFI = 0.967, TLI = 0.980 and RMSEA = 0.075. In conclusion, the revised model fits the data well and there is no proof that the model is incorrect based on the fit statistics. Implications of the study was significant to enhance and empower value-based leadership approach that influenced the university’s culture towards achieving success and excellence.

Keywords: Leadership values; culture values; structural equation modelling (SEM); intangibles

ABSTRAK

Kepentingan nilai-nilai teras yang menyokong kepimpinan dan budaya amat difahami dan kriterium ini penting dalam menentukan kejayaan organisasi. Oleh itu, dalam makalah ini dikaji kesan kepimpinan terhadap budaya melalui penunjuk-penunjuk berasaskan nilai. Kajian ini dijalankan di sebuah universiti di Pantai Timur Malaysia. Soal selidik dibina dan diubah suai daripada kajian lepas dan diuji rintis. Sebanyak 400 borang soal selidik telah diedarkan kepada responden dan 153 borang soal selidik dikembalikan. Data dikodkan ke dalam perisian Predictive Analytics Software (PASW) versi 18.0 dan perisian AMOS digunakan untuk menganalisis model hipotesis menggunakan pendekatan pemodelan persamaan struktur (SEM). Keputusan pemodelan mencadangkan model hipotesis disemak yang menghasilkan statistik padanan yang mencukupi dengan nilai-\( p \) = 0.078, CFI = 0.99, GFI = 0.967, TLI = 0.980 dan RMSEA = 0.075. Kesimpulannya, model semakan sepadan dengan data dan tiada bukti yang kukuh untuk menyatakan model berkenaan tidak benar berdasarkan statistik padanan. Implikasi kajian adalah signifikan untuk meningkatkan dan memperkasa pendekatan kepimpinan berteraskan nilai yang mempengaruhi budaya universiti dalam mencapai kejayaan dan keceremahan.

Kata kunci: Nilai-nilai kepimpinan; nilai-nilai budaya; pemodelan persamaan struktur (SEM); tidak zahir
1. Introduction

Leadership and cultures are interrelated to each other in any organisations for achieving organisational excellence and of importance for competitive advantage. Many studies focused on these particular criteria symbolising its importance for further research (Schein 2004; Ogbonna & Harris 2000). Most studies concentrating on the features and characteristics of leadership and cultures respectively (Ogbonna & Harris 2000). This also means that the indicators used to measure the leadership and cultures are based basically on tangibles criteria. In addition to that, the need for measuring the intangibles criteria that embeds values in leadership and culture are inevitable (Mokhtar et al. 2003; 2008). Obviously, there exists a gap in measuring the leadership and cultures in terms of intangibles aspect through core values.

Core values are said to be the inner driver for organisational well-being and if it is fully embraced, the organisation would prosper further (Collin & Porras 1996). Besides that, Selznick (1957) emphasised that for an organisation to be institutionalised it must be infused with values. It is obviously apparent that core values have the roles to play for organisational survival.

Therefore, the aim of this paper is to measure the leadership and cultures through value-based indicators as suggested by Ab Hamid et al. (2010; 2011). In addition, this article also examining the causal effect of leadership values onto culture values. In another words, the structural validity of this relationship are assessed by looking at the impact of leadership values on culture values in the higher education sector in a selected university in Malaysia.

2. Literature Review

The question of value has become important and apparent in many studies, particularly in the field of leadership (Russell 2001). This is because leadership is considered as a very important factor for driving the organisation towards excellence. However, this factor will also be experiencing a crisis if there is an element of a management personal interest. Russell (2001) stated that the values are the core beliefs that are thought to stimulate the behaviour of the leaders personally and caused of moral reasoning. Clearly, question of values is very important for every individual in the organisation, especially for a leader to espouse with.

There is no doubt that the values embraced by each individual varies accordingly and depends mostly on the local cultural context, social institutions, family background etc. The difference in personal values causes various interpretations of values for leaders themselves. Leaders must communicate its intention to advance the organisation through the values that have been agreed upon in the context of the organisation and not a personal value that exists in himself or herself. However, personal values that are suitable and appropriate may be applied for a more robust guidelines in carrying out its role as a leader. Attitudes and behaviors of a leader should reflect the values inherent in the organisation (Currie et al. 2009).

In fact, most researchers consider specific definition of core values that should exist in a leader (Russell 2001). Among others are honesty, integrity, justice, equality, and care for others. In essence, the leadership plays a fundamental role in decision-making, problem solving and dissolve conflicts in the organisation. In other words, values cause a decision to be reached in the organisation based on the consideration for the good of the organisation. Therefore, the criteria for leadership should be given attention as this mostly affect the leaders of any organisation. Among them is the threat of corruption and abuse of power is a symptom of an increasingly complex socio-political environment and a threat to the integrity, stability and national security (Jawatankuasa Keutuhan Tadbir Urus 2009). These things happen because of loosely-holding of core values among employees in the organisation. Thus, the
acceptance of these core values needs to be strengthened and instill into leadership for achieving overall organisational excellence (Mokhtar et al. 2003).

In fact, managing an organisation through value-based leadership is very significant and may be facing challenges in its realisation, but it must be initiated by the leaders of the organisation in support of efforts to lead by example (Abdus Sattar et al. 2010). Following is the values and its accompanying value-based indicators for leadership values in this research.

<table>
<thead>
<tr>
<th>Core values</th>
<th>Value-based Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truthfulness</td>
<td>The degree of the leaders to take risk for every decision taken without fear or favour in order to assure organisational success and dare to bear the responsibility of any actions/decisions.</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>The degree of leadership to ensure that whatever tasks assigned would be accomplished as planned/scheduled/budgeted by the organisation and execute the tasks/responsibility in accordance with the philosophy of the organisation.</td>
</tr>
<tr>
<td>Sincerity</td>
<td>The degree to which actions taken by the leaders are always in the best interest of the whole organisation and the management carried out the task to the best level of their effort/endeavor.</td>
</tr>
<tr>
<td>Sense of Direction</td>
<td>The degree to which actions taken by the leadership are in line with organisational goals and the leadership set a compelling vision towards the progress of the organisation.</td>
</tr>
<tr>
<td>Commitment</td>
<td>The degree of the leadership that consistently provide the guidance, means and encouragement for the people to achieve success as well as communicating the enthusiasm, energy and hope for it.</td>
</tr>
<tr>
<td>Competency</td>
<td>The degree of the leadership that capable of planning, managing and controlling the organisation as well as able to manage the diversity of human capital for the benefit of the organisation.</td>
</tr>
</tbody>
</table>

The next criterion in this section is the cultural criteria (Matin et al. 2009) that can be applied in performance measurement systems within an organisation. Cultural criteria are important to be studied because it forms a total organisational culture and describes each member of staff in the organisation. The importance of organisational culture overshadows the leadership for organisational success (Youngblood 2000). Zaini (2009) stated that cultural factors in educational organisations such as Higher Education Institution (HEI) is crucial because the university is not respected because of academic programs offered, but more to the cultural and academic environment that stimulates the mind, intellectual testing, creativity and knowledge-friendly atmosphere.

Therefore, it is clear that organisational culture is an important organisational capability to be studied (Fazli 2004). Organisational cultures include the habits, attitudes, beliefs and values that bind together individuals and groups. Fazli et al. (2003) and Cormican and O’Sullivan (2004) stated that culture is regarded as an enabler, when it contributes to the organisation. It can also be understood as a collection of basic values and belief systems that give meaning to the organisation (Cormican & O’Sullivan 2004; Gregory et al. 2009). Cormican and O’Sullivan (2004) summarises the culture that can be attributed to the values, norms and beliefs as a function of, \( C = f(\text{values, norms, beliefs}) \).

Schein (1990) classified organisational culture into three i.e. (a) artifacts that can be seen, (b) the values and (c) basic assumptions. The cultural model developed by Schein is enhanced by Hatch (1993). Hatch (1993) stated that organisational culture is dynamic and should
consider other factor i.e. symbol to bridge existing gaps in explaining the organisational culture. Moreover, Fazli (2004) defines culture as a set of positive values that focus on people and participation, enjoyment of work and relationships that develop the workers for long-term interests of the organisation.

Process improvement in organisations through the changes made in the organisational culture is often studied (Edwards & Kleiner 1988). Study by Kleijnen et al. (2009) found that perceptions of culture among the staff and the existing organisational culture is not fulfilling the needs of each other. The study found that flexible organisational culture is preferred by most staff rather than the controlled culture. Fanco and Bourne (2003) stated that as a pre-condition for success, organisation should emphasise on the importance of culture that does not penalise employees by reckless mistakes but even turn on a climate-related discussion on the performance analysis. Some researchers classified the corporate culture to reflect the organisational culture. Organisational culture exist if human resources in it are ‘stable’ and have the same historical background (Schein 1990). The strength of a culture that exists within the organisation can be measured empirically (Schein 1990), and the study of organisational culture intangibly is measured by the core values of a culture within the organisation as this research pointed out.

Organisational culture is tangible and difficult to clearly define (Edwards & Kleiner 1988), but can be translated to the values which support organisational culture, because culture is highly related to the value (Youngblood 2000). Hatch (1993) and Pettigrew (1979) also added that organisational culture can be understood as collection of basic values and belief systems that give meaning to the organisation. This is also supported by the definition given by Barney (1986) who said the organisational culture as a complex set of values, beliefs, assumptions and symbols that define how an organisation conducts its undertakings. Schein (1990) also cautioned that organisational culture is a complex phenomenon and cannot be measured blatantly until it is truly understood what is to be measured. Following is the values and its accompanying value-based indicators for culture values in this research.

<table>
<thead>
<tr>
<th>Core values</th>
<th>Value-based Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizenship</td>
<td>The degree of the staff that would contribute ideas/time/effort voluntarily and show the spirit of loyalty, involvement and togetherness at all levels in the organisation.</td>
</tr>
<tr>
<td>Consultation</td>
<td>The degree of views of others that are consulted in making important decision and discussed the important issues to reach on consensus on every decision made.</td>
</tr>
<tr>
<td>Caring</td>
<td>The degree to which caring culture exists in the organisation and having clear policies on staff welfare and human development.</td>
</tr>
<tr>
<td>Trust</td>
<td>The degree to which mutual trust exists among the staff and gain the trust in delivering tasks and responsibility.</td>
</tr>
<tr>
<td>Respect</td>
<td>The degree of which people’s ideas are respected no matter what position they hold or at which level they sit and existence of mutual respect among the staff at all levels in the organisations.</td>
</tr>
<tr>
<td>Quality</td>
<td>The degree of the staff that are concerned about understanding and internalisation of quality culture as well as supports given to quality programs and continuous quality improvement.</td>
</tr>
</tbody>
</table>

This study is of timely manner as there were so few studies that define and measure the values of the organisation (Wallace et al. 1999). Indeed, the culture of each organisation is different from one another. This is because these organisations compete among themselves to offer
services that are unique and different from its competitors to continue growing and achieve competitive advantage.

Leadership is said to influence the organisational cultures (Giampetro-Meyer et al. 1998; Kawatra & Krishnan 2004). Barney (1986) mentioned that leadership that is related to cultures could yield a robust financial performance. A study by Ogbonna and Harris (2000) also found that leadership influence the organisational performance through organisational cultures. Schein (2004) and Bass and Avolio (1993) also reiterated that leadership shapes the organisational culture. The leaders of an organisation shape the organisational cultures through the modeling of values (Russell 2001). Henceforth, one way in the new economy for a leader is to change his or her mental model about the organisation and expand the cultures horizon that are vital for the future of the organisation (Youngblood 2000). Therefore, following hypothesis is developed:

\[ H_1: \text{Leadership values significantly influence the culture values} \]

3. Methodology

This study is a subsection of a larger study where other variables were included but for the purpose of this article we only studied the leadership values and culture values. This study used questionnaire as an instrument for data collection on the assessment of the causal effect of leadership values on culture values in Higher Education Institution (HEI) in Malaysia. The questionnaire was adopted and adapted from the previous works conducted by Mokhtar et al. (2003) and Institute of Islamic Understanding of Malaysia (IKIM). This questionnaire used 11-point Likert scale which represented the range from 0 = not visible to 10 = visible for the measuring of values in terms of visibility in the HEI environment. The range for the Likert scale is large in order to provide variation of respondents’ answers on each item in the questionnaire.

The surveys were distributed to one of the universities in the East Coast of Malaysia as a preliminary study. 400 questionnaires were administered which represent the current population of approximately 1500 staff in the selected university. The respondents include academic and non-academic staff at all levels through convenient sampling procedure. The number of samples is deemed sufficient as referred to Krejcie and Morgan (1970). 153 surveys were managed to get back for analysis and this accounted for 51% of response rate. From the returned questionnaire, it is found that, the demographic information was not spelled out clearly by the respondents. Therefore, demographic information is not taken into account in analysing the data obtained.

The 153 dataset were coded and saved into Predictive Analytics SoftWare (PASW) and during the process of data screening, many data sets contained missing values and were deleted from the analysis and leaving 138 dataset to be analyzed. This deletion process involved the detection of multivariate outliers that were computed using the Mahalanobis distance suggested by DeCarlo (1997) and Kline (2011). The remaining sample size was still deemed adequate for the application of structural equation modeling (SEM) to address the research objectives. However, further validation was conducted using the Bayesian modeling in order to overcome the issue of the sample size (Arbuckle 2009; Byrne 2010) that is discussed in the following section. The analysis was conducted using Analysis of Moment Structures (AMOS) Software version 18.0 model-fitting program to assess the validity of the measurement model using confirmatory factor analysis (CFA) approach. Next, we examined the fit statistics of the full-fledged hypothesised model as in Figure 1.
3.1. Assessing validity and reliability

Hair et al. (2010) defined reliability as an assessment of the degree of consistency between multiple measurements of a variable. This study assesses the consistency of the entire scale with Cronbach’s alpha and its overall reliability of each factor of leadership values and culture values. Both factors yielded alpha coefficient exceeded the values of 0.70 as suggested by Hair et al. (2010). (Refer Table 3). From this result of Cronbach’s alpha coefficient value, items in the questionnaire were well accepted and admissible. In short, the questionnaire proved to be reliable.

In order to validate the instrument, this study also considered construct validation using AMOS with maximum likelihood (ML) to analyse the data. This approach is called as confirmatory factor analysis (CFA) as the hypothesised measurement model are based on the underpinning theory (Hair et al. 2010; Byrne 2010) as discussed in the next section.

Table 3: Measurement of the variables of the hypothesised model

<table>
<thead>
<tr>
<th>Latent Factor</th>
<th>Core values</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership values</td>
<td>Truthfulness (Truth)</td>
<td>6.9559</td>
<td>1.502</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trustworthiness (Trustw)</td>
<td>7.0652</td>
<td>1.260</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sincerity (Sincere)</td>
<td>6.9010</td>
<td>1.210</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sense of Direction (SoD)</td>
<td>7.3068</td>
<td>1.288</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commitment (Commit)</td>
<td>6.9493</td>
<td>1.208</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Competency (Compete)</td>
<td>7.1268</td>
<td>1.405</td>
<td>0.937</td>
</tr>
<tr>
<td>Culture values</td>
<td>Citizenship (Citizen)</td>
<td>6.9022</td>
<td>1.301</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consultation (Consult)</td>
<td>5.9094</td>
<td>2.010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caring (Caring)</td>
<td>6.3297</td>
<td>1.331</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust (Trust)</td>
<td>6.4565</td>
<td>1.180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respect (Respect)</td>
<td>6.4746</td>
<td>1.307</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality (Quality)</td>
<td>6.5543</td>
<td>1.252</td>
<td>0.870</td>
</tr>
</tbody>
</table>

3.2. Inter-item correlations matrix

Before embarking on CFA, the correlations between the items were checked. Originally, there were 2 items for each core values that were specified. For the purpose of analysis, a mean score to represent the core values under each criteria of leadership and culture values were used. Table 4 and Table 5 revealed the inter-items correlations among items in the leadership values construct and items in the culture values construct respectively.

Table 4: Correlation among items for leadership values

<table>
<thead>
<tr>
<th>Items</th>
<th>Truth</th>
<th>Trustw</th>
<th>Sincere</th>
<th>SoD</th>
<th>Commit</th>
<th>Compete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truth</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trustw</td>
<td>.648**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sincere</td>
<td>.752**</td>
<td>.758**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SoD</td>
<td>.643**</td>
<td>.804**</td>
<td>.766**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commit</td>
<td>.533**</td>
<td>.739**</td>
<td>.725**</td>
<td>.778**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Compete</td>
<td>.825**</td>
<td>.678**</td>
<td>.779**</td>
<td>.752**</td>
<td>.628**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).
Table 5: Correlation among items for culture values

<table>
<thead>
<tr>
<th>Items</th>
<th>Citizen</th>
<th>Consult</th>
<th>Caring</th>
<th>Trust</th>
<th>Respect</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consult</td>
<td>.062**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caring</td>
<td>.455**</td>
<td>.635**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>.577**</td>
<td>.447**</td>
<td>.731**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respect</td>
<td>.423**</td>
<td>.650**</td>
<td>.690**</td>
<td>.778**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>.573**</td>
<td>.480**</td>
<td>.653**</td>
<td>.694**</td>
<td>.728**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).

The correlations among the bivariate items showed that the correlations among the items for leadership values and culture values are admissible. Most of the items were significant at 0.01 level. However, bivariate correlation for item *citizenship* and *consultation* are not of practical importance and insignificant and thus these 2 items might be considered for deletion during the modeling process. Overall, no multicollinearity occurred among the items in this study. Therefore, the analysis is proceeded cautiously.

3.3. Confirmatory factor analysis

In this study, confirmatory factor analysis (CFA) was used to determine the construct validity of the questionnaire items of both latent construct i.e. the leadership values and the culture values. It means how well is the construct explained the variables under the construct (Hair *et al*. 2010). In other words, whenever the correlation of the items within the same construct is relatively high it is said to have the construct validity. Also, the factor loading or the regression weight and the squared multiple correlations (SMC) of the items are significantly correlated to the specified construct would also contribute to the construct validity comprehension.

3.4. The hypothesised model

The model to be tested postulates a priori that leadership values influenced culture values in the organisation especially at the HEI i.e. the university (see Figure 1). The items were loaded onto respective factors of leadership values and culture values. Each of the factors were measured by six variables i.e. the values that have been specified to represent the core values for each latent construct. Each of these observed variables is regressed onto its respective factor (Byrne 2010). In addition, the reliability of each item is influenced by random measurement error, as indicated by the associated error term. In this study, the exogeneous variable is the latent factor of leadership values while endogeneous variable is the latent factor of culture values. Hence, latent construct of culture values is attached with another error term which is called as residual error in the linkage of structural model of leadership values onto culture values.
3.5. **Modelling strategy**

Hair *et al.* (2010) stressed three distinct types of modeling strategy i.e. *confirmatory modeling strategy*, *competing models strategy* and *model development strategy*. Each of these three represents different approach in modeling. The confirmatory approach is the most straightforward strategy as the name implies the confirmatory approach that the researcher specifies a single model composed of a set of relationships and apply SEM to assess the model adequacy. In other words, to find support whether the model fits the data. Secondly, competing models strategy revolves around testing several models i.e. the alternative models through overall model comparisons. The assessment of all models would yield the best model that could represent the data collected which is much stronger than a test of a single model alone.

The last one is the model development strategy that begins with the basic model framework and following the adequacy and reasonableness of improving the framework through modifications of the structural or the measurement models. It starts with model that is built based on theoretical judgement that will be empirically tested using SEM. Following this, the model can be modified based on the researcher’s judgement or suggestion given by the modeling software used and this re-specification must also be theoretically viable. In this study, the model development strategy was employed to find a model that fits the observed covariance matrix well (Byrne 2010). This re-specification process may be done in several ways through modification indices, insignificant loading, low squared multiple correlations (SMC) or proportion of variance explained, standardised residual matrix etc.
4. Results

This section presents the results of the confirmatory factor analysis (CFA) on both measurement model of leadership values and culture values.

4.1. Validity of the measurement model of leadership values and culture values

The CFA was run for each of the measurement model as in the hypothesised model in Figure 1. Initially, each of these factors was measured by 6 items for both latent constructs of leadership and culture values. Each item was assumed to load only on its respective dimension. From the initial findings of CFA, the measurement models yielded a non-fit model and therefore several modifications had been conducted until reaching acceptable model fit based on the suggestion by the modification indices and considerations on the standardised residual matrix (refer Figures 2 and 3).

In each case, few items were removed due to violation of estimation. The revised of 2 CFAs for each of these latent constructs showed an adequate fit to the empirical data. [CFA for Leadership values: Normed Chi-square=1.788, p-value = 0.128, CFI = 0.994 and RMSEA = 0.076 and for Cultural values: Normed Chi-square = 1.237, p-value = 0.290, CFI = 0.999 and RMSEA = 0.042]. Therefore, the following Figure 2 and 3 are the re-specified of the measurement model after the estimation using ML method.

From the confirmatory factor analytic approach, it is observed that the factor loadings of all observed variables or items are adequate ranging from 0.77 to 0.90. The factor loadings or regression weight estimates of latent to observed variable should be above 0.70 (Hair et al. 2010). All fit indices of measurement model above the threshold values proposed by many researchers. This indicates that all of the constructs conform to the construct validity test which means that all items belonged to the specified constructs. All factor loadings of leadership values and culture values are of practical importance and statistically significant at 0.05.

Also, all loadings are greater than 0.70 and this also give support for convergent validity of items on the specified construct. In addition, the SMC of each values are more than 0.50 and this implied that the variance for each items can explain more than 50% and reasonably well. Sincerity and competency is correlated and investigation on the items found that the items probably give the same meaning (Nordin 2001); and based on the modification index and upon researchers’ discretion, it was correlated. Following the result of CFA, then the structural model of leadership values on culture values was tested.

4.2. Validity of the structural model of leadership values on culture values

In order to examine the hypothesised model, the measurement models were integrated for establishing a causal effect of leadership values onto cultural values. As in Figure 1, it contains the measurement model of leadership values on the cultural values that both comprised first order factors. In addition to this, the item that best explained the construct is the items that have higher loadings on the same construct.
In full-fledged SEM model in Figure 4, several items i.e. core values were deleted from the causal model. This is done following the fit statistics that were not adequate and there is need for the model to be revised as referred to Figure 4. The fit statistics for this structural impact of leadership values on cultural values are: chi-square = 14.167, df = 8, normed chi-square = 1.771, p-value = 0.078, CFI = 0.990, TLI = 0.980 and RMSEA = 0.075. Based on these fit statistics, we concluded that there is no proof to say that the model is incorrect. The model was free from offending estimates. The path coefficient of leadership values onto culture values are statistically significant at 0.05 level and was of practical importance since its standardised structural coefficient was larger than 0.20. In addition, the direction of the causal path is in logical direction i.e. the direction of the structural model also is theoretically justifiable.
4.3. Bayesian analysis

Byrne (2010) mentioned that Maximum Likelihood (ML) estimation of Likert-scale items produces negligible effects of non-normal non-continuous data whenever each variable/item has at least 5 categories of response and large sample size. However, severe effects of non-normal non-continuous data occurred whenever each variable has 4 or less categories of responses and small sample size which is less than 200. Under this condition, this study could only use 191 questionnaire for analysis and therefore, Bayesian estimation is recommended for re-affirming the previously conducted CFA in section 4.1. The Bayesian CFA analysis was conducted in AMOS software to estimate the unstandardised weights produced by this analysis with the unstandardised loading obtained in the CFA using ML procedure.

Basically, the fundamental concept in ML estimation, the true values of the model parameters are fixed but unknown, while the estimates from a given sample are considered to be random but known (Byrne 2010; Arbuckle 2009). Bayesian estimation works in a situation whereby any unknown quantity as a random variable and assign a probability distribution to it (Byrne 2010). In another words, in Bayesian estimation, the true model parameters are unknown and considered to be random. The parameters are assigned a joint distribution i.e. prior distribution (before the data are observed) and posterior distribution (after being observed) which will be combined together. This joint distribution is based on the formula which is called as Bayes’ theorem.

There are two important elements of the joint distribution for the analysis which are the mean of the posterior distribution as the parameter estimate and also the standard deviation of posterior distribution that serves an analog to the standard error in ML estimation (Byrne 2010). It is an added advantage for the researcher to conduct analysis based on both methodological approaches and then conduct the comparative analysis for the parameter estimates (Byrne 2010). Therefore, the results of the comparative analysis is shown in Table 6.

<table>
<thead>
<tr>
<th>Loading</th>
<th>ML</th>
<th>Bayesian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership values &gt; Trustworth</td>
<td>1.065</td>
<td>1.081</td>
</tr>
<tr>
<td>Leadership values &gt; Sincere</td>
<td>1.000</td>
<td>1.014</td>
</tr>
<tr>
<td>Leadership values &gt; SoD</td>
<td>1.119</td>
<td>1.133</td>
</tr>
<tr>
<td>Leadership values &gt; Commit</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>Culture values &gt; Caring</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>Culture values &gt; Trust</td>
<td>1.099</td>
<td>1.118</td>
</tr>
<tr>
<td>Leadership values &gt; Culture values</td>
<td>0.606</td>
<td>0.604</td>
</tr>
</tbody>
</table>

From the results, not much difference exist between the loadings generated from ML estimation and Bayesian estimation. This gives evidence that the CFA and the full-fledged SEM using ML estimation in this study is acceptable and reliable albeit the small sample size.

5. Conclusions

From the revised model, we can say that trustworthy and sincere leaders with sense of direction and commitment are more likely to make the university’s culture caring and full of trust than untrustworthy and insincere leaders without sense of direction and commitments. However, this finding, is subjected to one university only and the findings cannot be generalised to all universities in Malaysia. The findings also revealed that leadership values in the university would affect the overall culture of the university. Henceforth, values are of
import to be blended in leadership and cultures; as Selznick (1957) emphasised that if an organisation is to be institutionalised it must be infused with values.

The present study extends the understanding of structural impacts of leadership values onto culture values in the HEI (Ogbonna & Harris 2000; Schein 2004). Sense of directions values represent the leadership values followed by trustworthiness, sincerity and commitment. For culture values, trust culture is the dominant values followed by caring. The SMC for culture values is 0.38 and simply said that the culture values explained about 38% of variability in leadership values. The data is consistent with theory i.e. leadership values influence the culture values and in congruent with the results of earlier studies of leadership on cultures.

This summarised that leadership influence the culture in the organisation especially in HEI in the particular university under study. It is therefore, core values are important to be embedded in leadership and culture of an organisation (Mokhtar et al. 2003). It also gives support for the university to empower the value-based leadership and value-based cultures. It also paves the way and horizon for measuring the achievement of leadership and cultures intangibly. This is also vital as tangibles factors are not only the sole indicator of organisational excellence. This structural model could be the basis for any organisations to fully embrace and prioritise the criteria especially the leadership and culture criteria to prosper and function effectively.

Also, the data offered adequate support that each set of items is represented by a common meaning, the results of the analysis provides evidence for construct-related validity of the impacts of leadership values to culture values. In short, the results of the study indicated that leadership values directly, significantly and substantially affects the culture values as leadership can mould the organisational culture (Schein 2004); towards achieving a total organisational excellence. The finding could also implicate the university management to consider value-based management in Higher HEI especially in Malaysia.

In summing up the research, it is suggested that the management of HEI look into the leadership values and culture values as this study revealed. It is clearly defined that leadership values embraced by the university leaders or management team influenced the university’s culture values. This also implied that leadership values can form or change the organisational values. This endeavour also promote the value-based management approach especially value-based leadership and value-based cultures in the organisation especially in HEI. In conclusion, this research accomplished its objectives in terms of measuring the leadership and culture from the aspect of intangibles measurement through value-based indicators. Again the substance is to come out with values indicators in order to measure the impact of leadership onto culture in university environment.

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References


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