CHAPTER 5

SUMMARY OF FINDINGS AND DISCUSSION

This chapter discusses the findings of this study which examined a sample of higher education institutions (HEIs) on their performance and efficiency based on the effects of learning organization culture, creative organizational climate, and knowledge creation practices. The discussion is presented in two primary sections. First, the discussion of the methods and demographic profile will be presented. Next, the findings that answer the objectives and research questions of this study will be discussed. The study discusses the findings as in the order analyzed in Chapter 4.

5.1 DISCUSSION ON METHODS AND DEMOGRAPHIC PROFILE

5.1.1 Research Methodology

The methodology of this study in Chapter 3 considered a sample of 21 universities to understand their performance and efficiency based on concepts in organizational learning and knowledge management. The study conducted an extensive survey with 600 respondents from 21 universities across three states and a Union territory in India during the year 2013-2014. The respondents consisted of students, teaching staff, and non-teaching staff/administrative staff. The population for this study consisted of 98 universities in total across three states and a union territory in India. The study employed simple random technique for the sample selection and its respondents. The data was collected using paper-pencil method with 75% non-defective response rate.
5.1.2 Instrument

The study developed a consolidated questionnaire using multiple frameworks such as learning organization model (Watkins & Marsick 2003), Ekvall’s 10 creative climate dimensions (Ekvall 1996), and SECI model (Nonaka & Takeuchi 1995) to analyze the knowledge performance of HEIs. The study instrument captured information about the institutional characteristics that account for better organizational performance with respect to its knowledge outcomes. Thus, the 75-items in the instrument rated the respondent’s perceptions on a 5-point Likert rating scale. Additionally, there were 8-items that collected information to analyze the individual and institutional demographic profiles. The instrument showed good reliability and validity evidence. The Cronbach’s alpha for the consolidated questionnaire was .96 for all the 75 items and hence, it was found that the instrument is appropriate for this study. Further, the confirmatory factor analysis (CFA) was employed to show the construct validation of the instrument. CFA was conducted for each variable separately and then the measurement model was determined. Based on the results of the CFA analyses and with RMSEA = .05 and GFI = .91 for the measurement model, it was further found that the instrument demonstrated a good model fit to the data.

5.1.3 Institution Details

Due to cost and time constraints, the methodology of this study consisted of HEIs pertaining to university/university-level institutions that offer regular or formal system of higher education. The frequency analysis showed that out of the 21 universities in the sample, there were 4 central universities, 7 state universities, and 10 deemed universities. The number of respondents who participated in this study were 73 respondents from central universities, 264 respondents from state universities, and 263 respondents from deemed universities. Similarly, the number of respondents from the state of Tamil Nadu, Telangana & Andra Pradesh, and Puducherry were 400, 150, and 50 respectively.
5.1.4 Respondent Details

The eligibility criteria set for the respondents by the methodology of this study was that they have to be a full-time student or teaching staff or non-teaching/administrative staff who were associated in their current institution for a minimum period of one year. Thus, the respondents comprised 300 students, 259 teaching staff, and 41 non-teaching/administrative staff. Gender-wise there were 311 male and 289 female respondents which constituted 51.8% and 48.2% of the total sample size respectively. Since both the gender represented almost equally, it is evident that the study was free from gender bias. Further, the questionnaire had the option for other genders but since there were no data during the data collection, this option was categorically removed from further statistical analyses. With respect to age-wise representation, there were 296 respondents of less than 25 years old, 82 respondents between 25 to 35 years old, 154 respondents between 36 to 45 years old and 68 respondents who were 46 years old or above. Similarly, with respect to education level there were about 195 doctoral graduates, 166 post graduates, and 239 under-graduates who participated in the study. Finally, the experiences of the respondents in their current institutions were as follows: 328 respondents with 2-5 years, 155 respondents with 6-10 years, 96 with 11-15 years, and 21 with more than 15 years.

5.2 SUMMARY OF FINDINGS

5.2.1 Relationship between the Study Variables

The first objective of this study was to analyze the variables in the fields of organizational learning and knowledge management that contributes for improved performance in HEIs. Using systematic literature review it was found that learning organization culture and its antecedent (creative organizational climate) had a considerable amount of impact on the knowledge performance of HEIs. Further, knowledge creation practices were also found to have an effect on the knowledge performance of HEIs. To prove
it empirically, the study conducted correlation analysis among the study variables that showed a positive correlation among all the variables. This is in tune to the argument laid by Argote (2013) that organizational learning along with knowledge management practices will improve the performance of organizations.

5.2.2 Differences in Outcomes based on Demographic Groups

To address the research question 1 of this study, one-way ANOVA was conducted. The results showed no differences for the gender and job variables. This indicated that both student and staff groups and male and female groups had the same level of perception on all the factors. But, there was a significant difference for all the main variables based on the type of institution. It was noted that the central and deemed universities had the highest score than the state universities suggesting that these universities were utilizing the resources effectively. Hence, it was suggested that the leadership in state universities have to design strategies that promote learning organization culture, creative organizational climate, and knowledge creation practices for better knowledge performance in their institutions. In terms of age demographic variable, respondents in the age group of more than 45 years old had the highest score when compared to the other younger groups. This confirmed the results from the study conducted in small and medium-sized enterprises (SMEs) in Taiwan (Tseng 2010). Tseng’s study attributed that older groups are more likely to be in a position of authority to utilize the opportunities in the institution. Similarly, respondents with doctoral degree and experience of more than 15 years had the highest score when compared to other categories for both the learning organization culture and knowledge creation practices. This is also similar to the results evinced in Tseng’s study. This shows that DLOQ can be applied in cross-cultural studies. Finally, in terms of regional states where the sample universities were incorporated, it was found that the universities in Tamil Nadu and Andhra Pradesh exhibited higher scores for creative organizational climate but the universities in
Puducherry scored highest for the learning organization culture. This showed that universities in Tamil Nadu and Andhra Pradesh have their environment conducive for research and innovation in spite of having low organizational learning characteristics. There were no differences observed for the other variables.

5.2.3 Factorization of the Study Variables

From the factor analysis, the study found that the loadings of the measure on each item for the variables of learning organization culture, organizational climate, knowledge creation practices and knowledge performance was above 0.5. The items for the learning organization culture were grouped under seven dimensions as in the original DLOQ model. This showed that DLOQ as an appropriate instrument to measure learning organization culture in HEIs. The 10 items for the dimensions of creative organizational climate were contextually grouped under three dimensions viz., motivation, exploration, and resources. The items for knowledge creation practices were factored based on the theory. It resulted in four factors that represented externalization, combination, socialization, and internalization. Finally, the outcome variable- knowledge performance resulted in two factors that could not be contextually grouped. Hence, the study analyzed it as a single dependent variable without any constructs.

5.2.4 Relationship between Creative Organizational Climate and Learning Organization Culture

The objective 2 of this study was to analyze the relationship between creative organizational climate and learning organization culture. To address this objective, the study developed a mathematical model using discriminant analysis to understand the relationship between the two variables. The steps that were used to develop the model were as follows: First, the study used cluster analysis that classified the sample as low, average, and high learning organization culture based on the respondent’s
perception. Second, the clusters thus formed were also tested for their reliability using discriminant analysis. This resulted in two discriminant functions and the classification result showed that 94.5% of the cases were correctly classified. Finally, the model was developed using discriminant analysis between the three factors of the creative organizational climate and the three clusters of learning organization culture. The high values of Wilk’s lambda showed a weak group difference among the mean values of the three factors but yet, they were found significant. Further, the Eigen values between the two discriminant functions showed that the variance shared among the variables were in very less amount. The structure matrix of the analysis revealed the correlation between each variable in the model and the discriminant function was significant for the factors of the creative organizational climate. Thus, it was found that creative organizational climate predicts the learning organization culture in HEIs. This study reiterates the previous research findings that showed the role of creative organizational climate on learning organization factors (Moghadam et al 2012; Samad 2010; Ismail 2005; Ismail et al 2003). Therefore, it is suggested that higher education institutions design proper measures to improve their creative climate in the process of becoming a truly learning organization.

5.2.5 Correlation between Organizational Learning and Knowledge Management in HEIs

Canonical correlation analysis was employed to address the research question 2 of this study. The learning organization culture and creative organizational climate were grouped under organizational learning, and knowledge creation practices and knowledge performance were grouped under knowledge management. The result of the analysis showed that there exists a linear relationship between the two specified groups and at least five possible canonical variates are necessary to explain their interrelationship in HEIs. This empirical study also answers an interesting question raised by Aggestam (2006) as follows, ‘Learning Organization or Knowledge
Management - Which came first, the chicken or the egg?’ The study argued that both the concepts are dependent on one another for success and the present empirical study showed that both are correlated concepts for the organizational performance of HEIs.

5.2.6 Findings of Mediation Analysis

To address the objective 4 and the research questions 3 and 9 of this study, mediation analysis was conducted. Using discriminant analysis the study showed the evidence that creative organizational climate predicts learning organization culture. Yet, the study was interested in validating those results with mediation analysis. First, the creative organizational climate was regressed onto the learning organization culture and was found significant. Next, the creative organizational climate was regressed onto the knowledge performance and was found significant. Finally, the creative organizational climate together with learning organization was regressed onto knowledge performance and was found significant with the adjusted $R^2= .59$ ($F=51.92$, $p<0.001$). Thus, the study showed that creative organizational climate is an antecedent of learning organization culture. A second mediation analysis was conducted to determine if the knowledge creation practices mediate the learning organization culture and knowledge performance relationship. It produced an adjusted $R^2= .69$ ($F=81.26$, $p<0.001$) which showed that knowledge creation practices mediated the learning organization culture and knowledge performance relationship. This was also evident in the study on team performance where knowledge creation practices were found to mediate the learning organization culture and knowledge performance relationship (Yoon et al 2010). Further, the regression coefficient for the learning organization culture was significant in the mediation analysis although it was reduced from $\beta= .683$, $t= 24.88$, $p< .001$ to $\beta= .331$, $t= 9.17$, $p< .001$. This suggested that knowledge creation practices partially mediate the learning organization culture and knowledge performance relationship in HEIs. Hence, it was evident that HEIs must focus on the aspect of knowledge
management practices and try ways to integrate it with the organizational learning initiatives.

5.2.7 **Findings of Moderation Analysis**

The objective 3 and the research question 8 of this study were to determine if creative organizational climate moderate the learning organization culture and the knowledge performance relationship. This is because the study was interested to extract the moderating variables in the organizational learning model. The analysis revealed that creative organizational climate had a significant interaction effect on the relationship ($\beta = .04$, $p \leq .05$). This analysis was found useful because there were no studies that identified this unique effect and thus, the study argued why certain institutions were not able to improve their efficiency despite investing considerable amount of resources for its learning activities.

5.2.8 **Knowledge Performance Model**

To address the objective 5 and the research questions 4 to 7 of this study, structural equation modeling was conducted. The results from the analysis suggested that the hypothesized model fit the data well ($\chi^2[87]=335.49$, $p \leq .001$; $CFI=.92$, $GFI=.92$, $RMR=.05$, $RMSEA=.06$). The question 4 attempted to study the impact of learning organization culture on knowledge performance. As argued by Kumar & Idris (2006), the results of this study also suggested that learning organization culture is positively related to knowledge performance ($\beta= .68$, $p<.05$). It is seen that their study conducted in Malaysian private higher education institutions showed only three dimensions such as leadership, team learning, and embedded systems had positive impact on knowledge performance but the present study observed that all the seven dimensions of Marsick & Watkins (2003) contributed to knowledge performance. The question 5 attempted to study the impact of creative organizational climate on learning organization culture. In tune to the argument laid by Moghadam et al (2012), the SEM analysis in this
study showed that creative organizational climate is positively related to learning organization culture ($\beta = .37$, $p < .05$). The question 6 attempted to study the impact of learning organization culture on knowledge creation practices and it was found that they were positively related ($\beta = .95$, $p < .05$). This was also in agreement with the argument laid by Argote (2013). Finally, question 7 attempted to study the impact of knowledge creation practices on knowledge performance and it was found that they were positively related ($\beta = .21$, $p < .05$). This was evinced in the study by Dermol (2013) and the present study had also given similar findings. Thus, the knowledge performance model was found to be structurally valid.

5.2.9 Efficiency and Ranking of the Universities

To address the objective 6 and research question 10 of this study, efficiency of the sample universities were determined using data envelopment analysis (DEA). The results reported that of the 21 universities in the sample only four universities were found efficient. In order to account for the limitations in DEA of calculating the decision units being unrealistically weighed, the study employed cross efficiency matrix. This provided an accurate measurement in evaluating the efficiency of the universities. On analyzing the Table 4.60 in Chapter 4 with the results given in Appendix 3, it was seen that for the DMU 15 which was ranked as first, the learning organization culture (LOC) variable contributed the highest with 76.3%, creative organizational climate (COC) contributed 19.7% and knowledge creation practices contributed the least with 3.9% in achieving the 100% efficiency of the institutional knowledge performance. This result is in tune to the results as evinced using the SEM analysis in deriving the knowledge performance model given in section 4.1.11. The Table 4.60 showed that DMU 04 is the least efficient in spite of having 100% efficiency and the efficiency report in Appendix 3 indicated that despite having highest learning organization culture (97.7%) the value for creative organizational climate was
zero. This suggested that creative organizational climate plays a crucial role and moderates the learning organization culture and knowledge performance relationship. Similarly, the DMU 06 was ranked as 16 in spite of having 100% efficiency and the efficiency report in Appendix 3 suggested that the contribution from the creative organizational climate and knowledge creation practices were absolute zero and hence the lower ranking. The analysis shoed that the DEA results were in congruence with that of the SEM model and thus indicated creative organizational climate and knowledge creation practices play a crucial role in the efficiency of the institutions with respect to its knowledge performance. The DMU 12 had the 100% efficiency despite the zero contribution from the knowledge creation practices and hence it was ranked in seventh place. It was also noted that DMU 17 had zero contribution from the creative organizational climate but it had the potential for improvement by reducing 4.43% of the resources spent on achieving its target value. Hence it was ranked in second place. Thus by analyzing the efficiency report of each institution, this study specified the areas of improvement in the sample HEIs based on the benchmark. Although DEA has been employed in several studies conducted in India across several sectors such as hospitals (Ram Jat & San Sebastian 2013), banks (Sahoo & Tone 2009), food industry (Kumar& Basu 2008) etc., this study is considered to be the pioneer in the field of higher education.

Thus, the study addressed all the objectives and the research questions in a coherent and logical manner. The findings not only provide a valuable insight in the administration of higher education, but also offer a new direction for theory and practice in the fields of organizational learning and knowledge management.