

Communication Climate, Organizational Learning Readiness and Job Satisfaction in Information Technology Service Enterprises

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Abstract

The purpose of this exploratory study was to identify probable deficiencies in the constructs of communication climate and organizational learning readiness, and to validate their essential relationship to learning motivation, job satisfaction, and worker commitment in technology service enterprises. A total of 225 usable surveys were collected from employees in six Small and Medium-sized Enterprises (SMEs). The results of the study revealed statistically significant differences in organizational learning readiness variables for department type, role, and education level of employees among the six enterprises studied. The study's results also indicated statistically significant correlations existed among job satisfaction and variables of organizational learning readiness. As confirmed in this study, in high-tech industry, such as Information Technology service, knowledge sharing and organizational learning has become an essential focus and responsibility for many Human Resource management professionals.

Keywords: Organizational learning, Communication, Learning motivation, Information technology service

1 Introduction

Knowledge is widely recognized as an organization's most precious resource [1-3]. Within the management literature "few topics have received more attention over the last decade than organizational learning and knowledge management" [4]. In fact, both constructs appear to be growing in importance as organizations embrace a period of smart consumers unlike any the world has ever seen. Since the post-industrial era, organizations have aggressively targeted intellectual capital and rigorous knowledge

management as being equally important to physical asset management [5-6]. Maximizing intellectual capital and knowledge management are dependent on an organization's ability to learn and communicate learning in an efficient manner. "Organizational learning is the acquisition, distribution, interpretation and storage of new knowledge, which is essential for organizational success" [4]. Other researchers [7-8] emphasized the importance of learning organizations and the essential need to acquire new knowledge faster than the competitor and to establish learning organizations. Recently, in conducted an empirical, cross-nation study testing a learning organization model wherein they showed that learning organizations exhibit higher performance than their less learning-inclined counterparts [9]. Thus, supporting a healthy communication climate to effectively acquire and distribute knowledge is extremely important to learning organizations in complex situations, especially for those individuals who work in silos (isolated conditions) deficient of the appropriate knowledge required to solve interdisciplinary problems [1, 10].

Due to the severe economic recession and subsequent aftermath Small and Medium-sized Enterprises (SMEs) around the world are experiencing considerable stress as they constantly prepare for continuous change in a highly competitive global economy [11]. Therefore, business owners are always required to simultaneously embrace ambiguous market conditions, guarantee prosperity for their stakeholders, and provide multiple benefits to the greater community. With these types of demands it would be easy for Taiwan's managers and organizational development practitioners to assume organizational communication climates and organizational learning readiness are strategically aligned with the organization's mission and vision and thus be sufficient to promote job satisfaction [12] and other desired outcomes such as

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improved organizational performance. Unfortunately, this may not be true and unintentional neglect of learning organization fundamentals and the communication climate (the atmosphere in the organization that regards or accepts a manner of communication) may lead to lackluster outcomes. Further, HR policies may not sufficiently emphasize the communication climate's impact on effective Knowledge Management implementation in the SMEs [13].

Numerous studies have investigated variables related to an organization's choice of communication methods, the frequency of communication, how organizational communication affects organizational performance, and even the damage that occurs to an organization's revenues when communication is ineffective or is lacking [14-16]. However, limited empirical evidence exists that investigates and describes communicational effects and the relationship to organizational learning readiness and employee job satisfaction among SMEs in Taiwan. Thus, the purpose of this study is to determine if these relationships are present among the characteristics of enterprises and employees, and variables in organizational communication and organizational learning readiness in selected small and medium-sized enterprises.

2 Constructs Explored within the Literature

A selective literature was conducted based on the primary purpose of the study.

2.1 Organizational Communication

Organizational communication can be defined as the "display and interpretation of messages among communication units that are part of a particular organization" [17]. It is also described as general communicational processes and dynamics within the organization.

To emphasize the importance of learning to organizations, the primary focus of organizational development, and to motivate individuals in the organization to share their ideas and experiences, organizational communication processes becomes essential.

2.2 Organizational Communication Climate

Climate has been referred to as a set of attributes specific to the organization that evolves from the way that an organization deals with its members and its environment [18-19]. Therefore, researchers suggested that climate takes the form of a set of attributes or expectancies that describe the organization in terms of behavior-outcome contingencies [18, 20]. Learning is often thought of as a prerequisite to achieving transformation and innovation. Learning is also a way of building viable relationships, resolving conflicts,

adapting to change, reducing turnover and incentivizing exemplary performers. Thus, appropriate learning and communication climate may serve as a catalyst for ensuring growth, development, and survival in turbulent marketing conditions [21-23].

In defined communication climate as the atmosphere in an organization that regards or accepts a manner of communication behavior [24]. It consists of "perceptions of communicative events, human behaviors, responses of employees to one another, expectations, interpersonal conflicts, and opportunities for growth in the organization" [17].

2.3 Communication as the Interface for Learning

In this hyper-competitive, changing and uncertain economy, organizations are discovering that technology and marketing strategies must be modernized on a frequent basis. Correspondingly, it is very important to develop efficient organizational learning processes and to deliver accurate information, facilitate the sharing of employees' ideas, perspectives, worldviews, and opinions, and to maintain a firm's learning culture [25]. In many ways, the organization becomes a living, thriving organism of sorts while storing massive amounts of data and information. Obviously, "communication" serves as the primary interface for learning, growth, innovation and prosperity for those organizations committed to developing an appropriate communication climate to ensure learning readiness [26-28] and enhanced organizational development practices.

2.4 Theoretical Framework

Theories about organizational learning, the learning organization, and innovation are associated with knowledge acquisition through learning, dissemination of knowledge, systemic thinking, pervasive learning cultures, flexibility, and a willingness to experiment without penalty [21]. Lipshitz et al. [29] suggest the need for a unified approach to viewing the learning organization and advocate continued theoretical development of a new model. Senge's theory on the learning organization served as an impelling force for others interested in exploring organizational learning theory.

Many studies identified that evaluative inquiry, culture, leadership, systems and structures, communication, teams, and rewards/recognition are key dimensions that exist within the confines of learning organizations [27]. Due to the unprecedented level of change, organizations are in a constant state of redefining who they are and what they do. The linear hierarchal management styles are disappearing and organizations are transitioning into structures that require the advancement of ideas, purposeful trust for unity's sake, capitalization of creative energy, and ultimately newer

and better processes and services [27]. These changes require the utilization of evaluative inquiry, a concept that includes the coordination of multidisciplinary teams, permeable boundaries, mental focus, and innovation, commitment to orientation and results, and cultivating honorable relationships among peers [27, 30].

This study adopted portions of the Communication Climate Inventory (CCI) [31] and the Readiness of Organization Learning and Evaluation (ROLE) instruments [30]. The solely purpose of CCI is to assess the communication climate and working atmosphere in an organization. It is lack of finding the cross-relationship between other factors, or the factors that would affect communication climate. Even the ROLE instrument has communication factor, it was limited to the way the organizations empower employees and information delivery. It overlooks the communication climate would be affected by other variables, such as trust, supportive, and high performance goals. Therefore, the CCI was adopted to strength the instrument. Due to different cultural backgrounds among the population studied, and the potential for language barrier issues, the researchers modified the two instruments to create a single instrument with a total of 80 items, including seven questions for demographic data. The new instrument, the Organizational Communication and Learning Readiness (OCLR) survey has five variables, including leadership, culture, communication climate, systems and structures, and learning motivation used to examine selected enterprises' organizational climate and level of organizational learning readiness.

2.5 Key Questions and Explaining the Phenomena

This study sought to answer the following five research questions: (1) What differences existed among the six enterprise types and the organizational learning readiness variables studied? (2) What differences existed among the organizations' departments and the organizational learning readiness variables? (3) What differences existed between employee role and the organizational learning readiness variables studied? (4) What differences existed between employees' educational level and the organizational learning readiness variables? (5) To what extent are the hypothesized constructs (culture, systems & structures, communication climate and learning motivation) associated?

Industrial practitioners in Taiwan's SMEs may have limited knowledge of the direct and indirect effects of the exogenous and endogenous variables that were investigated in this study: culture, communication climate, systems and structures, leadership, rewards and recognition [30], learning motivation [32], and job satisfaction [33-34]. Every organization may have different levels of readiness in organizational learning

and communication climate. Therefore, we proposed the following hypothesis.

Hypothesis 1. The difference between and among the six enterprises studied and the learning organization readiness variables (leadership, communication climate effects, culture, systems and structures, employee learning motivation) were positive and significantly different from zero. Liu and Liu [1] indicated that knowledge sharing is important in research and development (R&D) context, and many research studies suggested that R&D professionals have different knowledge sharing patterns as traditional workers. In addition, as today's organizations become increasingly diverse [35-37], the influence of diversity on the relationship in the organization is critical to understanding the global and diverse work environments in which organizations find themselves [37]. Every department may develop its own work environment due to different contexts, culture and leadership. Therefore, we proposed the following hypothesis.

Hypothesis 2. The differences among and between eight departments and the organizational learning readiness variables (leadership, communication climate effects, culture, systems and structures, employee learning motivation) were positive and significantly different from zero. In 1963, U.S. president John F. Kennedy stated "Leadership and learning are indispensable to each other", hence the importance of continuing learning facilitated by pro-active leaders. In any organization, leaders should play the role of providing visions of how learning should take place through institutionalizing the system, structure and strategy of the organization [38-39]. The role of leadership has been frequently discussed in organizational culture from the perspective of organizational learning [40]. In an organization, administrators and employees should be involved in organizational learning; however, they may have different perspectives. Therefore, we proposed the following hypothesis.

Hypotheses 3. The differences between administrators and employees in the study and employees in the five organizational learning readiness variables (leadership, communication climate effects, culture, systems and structures, employee learning motivation) were positive and significantly different from zero. It is suggested that degree-level education develops the "knowledge and skills required of individuals to develop and sustain a learning organization culture" [41]. In an organization, different departments have different qualifications for their employees. The influence of individuals' psychological characteristics on organizational learning has become increasingly important in the past few years. One facet of his research was intended to determine if those employees with higher levels of education demonstrate significantly higher levels of organizational learning

readiness. Therefore, we proposed the following hypothesis.

Hypotheses 4. The differences between and among employees with different levels of education in the five organizational learning readiness variables (leadership, communication climate effects, culture, systems and structures, employee learning motivation) were positive and significantly different from zero. Figure 1 is the proposed research conceptual model based on the literature review and the researchers’ knowledge of the local cultures of the SMEs. Emphasis is placed on key variables [23, 27, 30] that may ultimately support improved learning motivation.

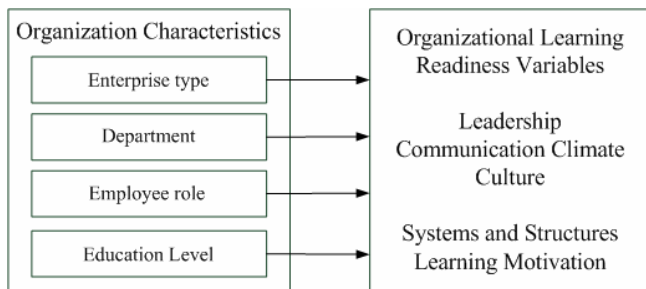


Figure 1. Conceptual framework of the relationship between and among SMEs

Hypotheses 5. The relationship among the five organizational learning variables measured by the constructs (leadership, culture, systems & structures, communication climate and learning motivation) were positively related and statistically different from zero. Hypothesis 5 was formulated and investigated using structural equation modeling. The proposed constructs and hypothesized paths are visually depicted in Figure 2. From the two constructs, leadership behavior and HR systems and structures, several paths were established to represent a hypothesized relationship to one or more of the constructs that related to the respondent’s perception of culture and employees learning motivation, communication climate effect, and employees learning motivation. Finally, a direct path was proposed between leadership, HR systems and structures and employees learning motivation.

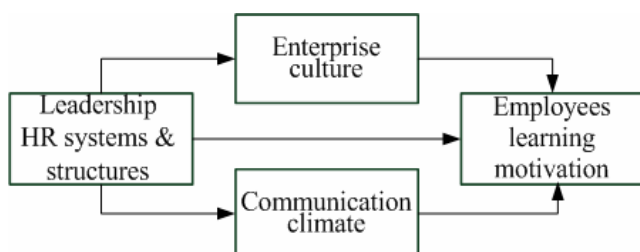


Figure 2. Conceptual framework of organizational learning readiness variables

2.7 Constructs and Relationship Implications

Table 1 shows the characteristics of organizational communication climate and the factors for each

construct. The factors beneath each construct imply there is a connection between organizational communication climate and an organization’s learning readiness.

Table 1. Characteristics of organizational communication climate and organizational learning readiness

| | Organizational Communication Climate | Organizational Learning Readiness |
|------------|---|-----------------------------------|
| Factors | Trust | Culture |
| | Participative decision making | Leadership |
| | Supportiveness | System & structure |
| | Concern for high-performance goals | Communication of information |
| | Openness in downward communication | Teams |
| | Listening in upward communication | Evaluation |
| References | Peterson et al. (1976) [31] | Preskill et al. (1999) [27] |
| | Communicational Climate Inventory (CCI) | Perskill et al. (2001) [42] |
| | | Russ-Eft et al. (2009) [30] |

3 Research Design

This section provides general methodological information, including details of the population studied, the sampling technique, instrumentation and translations, and procedures utilized to collect and analyze the data.

3.1 Population

The research design employed in this study was a cross-sectional survey research design. Employees of six small and medium-sized IT service enterprises in Taipei metropolitan area were asked to respond.

3.2 Instrumentation

This research adopted and modified a CCI instrument developed by Peterson and Pace [43] to measure the six communicational effects, including “trust, participative decision making, supportiveness, openness in downward communication, listening in upward communication, and concern for high-performance goals” [17]. The instrument has twelve items that are each measured on a 5-point likert-type scale. Each of the “six communication effects” consists of two questions. The tests of the CCI’s internal reliabilities determined coefficients ranging from 0.80 to 0.97. Applebaum and Amatol used the CCI in their research published in 1979 and indicated that the CCI “may be a valid index of overall organizational communication climate [17]. To measure organizational learning readiness, the researchers adopted and modified the “Readiness for Organization Learning and Evaluation” (ROLE) developed by Russ-Eft and Preskill [30]. The instrument was designed to “determine an organization’s level of readiness for implanting organizational learning and evaluation

practices and processes that support it” (p. 428). The original developers obtained a Cronbach Alpha Coefficient of 0.97 [30, 42].

3.3 Data Collection Procedures

A total of 240 surveys were distributed to the selected six enterprises with a letter addressing the purpose and significance of the study and participant instructions. Implied consent information accompanied the surveys. After the completion of the survey, selected employees of each of the six enterprises placed the completed surveys in a secure envelope. After the collection of the completed surveys, the employees sealed the envelope and returned it to the human resource managers or section directors for distribution to the researchers. Two weeks after the distribution of surveys to the 240 employees of the six enterprises, 225 completed surveys were returned for an overall response rate of 93.75%.

3.4 Data Analysis Techniques

The SPSS and AMOS programs were used to construct a Structural Equation Modeling to verify the model fit to the collected data and the overall magnitude of the relationships between and among the proposed variables. Also, structural equation modeling was used to detect the effects of leadership, culture, systems and structures, and communication climate on learning motivation.

4 Research Results

The majorities of the SMEs employees involved in this study possess and utilize post-secondary educational degrees in their work. Accordingly, 123 employees or 54.67% possess a bachelor’s degree and 36 employees or 16 percent have a master’s degree. Further, as shown in Table 2, among the respondents, 107 (47.6%) were male, 118(52.4%) were female. In addition, 32 (80%) of the employees in Enterprise A have less than four years of service, while 21 (53.9%) of the employees in Enterprise B have less than four years of service. Further, 18 (50%) of the employees in Enterprise C have less than four years of service and 8 (26.7%) of the employees in Enterprise D have less than four years of service.

This research processed a factor analysis. After deleting three questions with Corrected Item-Total correlations of less than 0.50, Table 3 presents the reliability of the OCLR survey instrument, and the subscale variables. Cronbach alpha levels exceed 0.90 on each variable except for the variables of systems and structures, and learning motivation which revealed a Cronbach alpha level of 0.881 and 0.806, reinforcing the internal consistency reliability—the extent to which the items of the modified instrument assessed

Table 2. Descriptive results of gender and longevity (*N* = 225)

| Ent. | Gender | Longevity (length of service) | | | | | Total |
|------|--------|-------------------------------|-------|-------|--------|-------|-------|
| | | >1yr | 1-3yr | 4-6yr | 7-10yr | 10+ | |
| A | Male | 8 | 16 | 0 | 2 | 0 | 26 |
| | Female | 6 | 2 | 4 | 0 | 2 | 14 |
| | Total | 14 | 18 | 4 | 2 | 2 | 40 |
| | % | 35% | 45% | 10.0% | 5.0% | 5.0% | 100% |
| B | Male | 6 | 6 | 1 | 2 | 2 | 17 |
| | Female | 6 | 3 | 7 | 3 | 3 | 22 |
| | Total | 12 | 9 | 8 | 5 | 4 | 39 |
| | % | 30.6% | 23.1% | 20.5% | 12.8% | 12.8% | 100% |
| C | Male | 4 | 8 | 2 | 2 | 3 | 19 |
| | Female | 0 | 6 | 7 | 2 | 2 | 17 |
| | Total | 4 | 14 | 9 | 4 | 5 | 36 |
| | % | 11.1% | 38.9% | 25.0% | 11.1% | 13.9% | 100% |
| D | Male | 0 | 2 | 6 | 2 | 2 | 12 |
| | Female | 0 | 6 | 2 | 0 | 10 | 18 |
| | Total | 0 | 8 | 8 | 2 | 12 | 30 |
| | % | 0% | 26.7% | 26.7% | 6.6% | 40% | 100% |
| E | Male | 3 | 4 | 5 | 0 | 3 | 15 |
| | Female | 1 | 9 | 8 | 0 | 7 | 25 |
| | Total | 4 | 13 | 13 | 0 | 10 | 40 |
| | % | 10.0% | 32.5% | 32.5% | 0% | 25.0% | 100% |
| F | Male | 0 | 2 | 10 | 2 | 4 | 18 |
| | Female | 0 | 2 | 6 | 8 | 6 | 22 |
| | Total | 0 | 4 | 16 | 10 | 10 | 40 |
| | % | 0% | 10.0% | 40.0% | 25.0% | 25.0% | 100% |

Table 3. Reliability of the instrument and the subscales (*N* = 225)

| Instrument and Variable | #Cases | #items | Cronbach’s α |
|-------------------------|--------|--------|---------------------|
| OCLR (overall) | 225 | 73 | 0.977 |
| Comm. Climate | 225 | 12 | 0.900 |
| Culture | 225 | 28 | 0.945 |
| Systems & Structures | 225 | 19 | 0.881 |
| Leadership | 225 | 11 | 0.920 |
| Learning Motivation | 225 | 4 | 0.806 |

common characteristics. “In general, in the social and behavioral sciences, a good measure should have a Cronbach’s alpha of at least 0.60 or 0.70 and preferably closer to 0.90. This method for assessing internal reliability is appropriate when using a likert-type questionnaire where the five response options for each statement extend from strongly disagree to strongly agree and are scored with integers 1 through 5 [44].

4.1 Enterprise and Departments Type

Research question one sought to compare the differences that existed among the six enterprise types in the various variables of organizational learning readiness and to test the hypotheses 1. Results, as shown in Table 4 of these comparisons, revealed there

were statistically significant differences between and among the six enterprise in systems & structures, $F(5, 219) = 2.52, p < 0.05$; and, leadership, $F(5, 219) = 3.44, p < 0.01$.

Table 4. Comparison of organizational learning variable difference scores by enterprises ($N = 225$)

| Learning readiness variable | <i>F</i> | <i>p</i> |
|-----------------------------|----------|----------|
| Leadership | 3.44** | 0.00 |
| Communication Climate | 1.41 | 0.22 |
| Culture | 1.83 | 0.11 |
| Systems & Structures | 2.52* | 0.03 |
| Learning Motivation | 1.73 | 0.13 |

Research question two sought to determine the differences that existed among the organizations' departments in the variables of organizational learning readiness and tested hypotheses 2. Results, as shown in Table 5 of these comparisons, revealed that the presence of organizational learning readiness in various departments were significantly different in all five variables, including leadership $F(7, 217) = 6.46, p < 0.01$; communication climate, $F(7, 217) = 5.39, p < 0.01$; culture, $F(7, 217) = 6.00, p < 0.01$; systems and structures, $F(7, 217) = 5.10, p < 0.01$; and learning motivation, $F(7, 217) = 6.43, p < 0.01$. Therefore, the works concluded that statistically significant levels of organization learning readiness existed among different departments more so than between the enterprises.

Table 5. Comparison of organizational learning variable difference scores by department type ($N = 225$)

| Organizational learning readiness variable | <i>F</i> | <i>p</i> |
|--|----------|----------|
| Leadership | 6.46** | 0.00 |
| Communication climate | 5.39** | 0.00 |
| Culture | 6.00** | 0.00 |
| System & structure | 5.10** | 0.00 |
| Learning motivation | 6.43** | 0.00 |

Further, as revealed in Table 6 post hoc comparisons were performed by the Scheffé's method. The results show that the research and development departments, sales, and marketing departments have higher levels of organization learning readiness than do the administrative department and customer services department.

4.2 Employee Role and Education Level

Research question three sought to compare the differences that existed between administrators and employees in various variables of organizational learning readiness. Hypothesis 3, the independent sample t-test showed statistically significant differences existed between employee roles (administrators or employees). The levels of agreements of administrators were significantly higher in those three variables, and the three constructs which measured the variables of

Table 6. Post hoc comparison of organizational learning ($N = 225$)

| Variables | Department comparison | <i>p</i> |
|-----------------------|---------------------------|----------|
| Communication Climate | R&D > Customer Ser. ** | 0.008 |
| | Mkt. > Customer Ser. * | 0.012 |
| | Sales > Customer Ser. ** | 0.009 |
| | Admini. > Customer Ser. * | 0.035 |
| | | |
| Culture | R&D > Customer Ser. ** | 0.001 |
| | Mkt. > Customer Ser. ** | 0.001 |
| | Sales > Customer Ser. ** | 0.004 |
| | Admini. > Customer Ser. * | 0.040 |
| | | |
| Systems & Structures | R&D > Customer Ser. ** | 0.003 |
| | Sales > Customer Ser. ** | 0.002 |
| | Mkt. > Customer Ser. ** | 0.049 |
| | Marketing > Fin. * | 0.022 |
| | | |
| Leadership | R&D > Customer Ser. ** | 0.003 |
| | Mkt. > Customer Ser. ** | 0.000 |
| | Mkt. > Tech. Support ** | 0.001 |
| | Admini. > Customer Ser. * | 0.038 |
| | | |
| Learning Motivation | R&D > Customer Ser. ** | 0.002 |
| | Mkt. > Customer Ser. ** | 0.001 |
| | Sales > Customer Ser. ** | 0.000 |
| | Sales > Tech. Support * | 0.014 |

organizational learning readiness, including culture, $t(223) = 2.55, p < 0.01$, systems and structures, $t(223) = 2.76, p < 0.01$, and learning motivation, $t(223) = 3.35, p < 0.01$.

Research question four sought to compare the differences that existed between and among employees with different levels of education and to test hypotheses 4. One-way ANOVA results revealed that there existed statistically significant results among the employees' levels of education and two constructs which measured the variables of organizational learning readiness including: systems and structures, $F(4, 220) = 2.53, p < 0.05$, and learning motivation, $F(4, 220) = 2.94, p < 0.05$. The post-hoc results indicated that employees with graduate degrees have higher learning motivation than the employees with undergraduate degrees or higher school diplomas. In addition, employees with graduate and undergraduate degrees have higher levels of agreements on systems and structures than employees with less level of education.

4.3 Structural Equation Modeling Testing on Hypothesized Constructs

Research question five sought to find out if the constructs (culture, systems & structures, communication climate and learning motivation) were associated. Based on research question five, hypothesis 5 for this study was postulated and tested. A two-step Structural Equation Modeling (SEM) was utilized to check the model fit to the data and the magnitude of the relationship between and among the five variables studied. The first step of the SEM was to estimate the model fit of the hypothesized model; four models fit

indices [45], including two models fit indices: GFI and CFI, and two additional error term and residual estimates were utilized to examine the proposed model. In Table 7, the overall chi-square for the hypothesized model was statistically significant ($\chi^2 = 166$, $df = 64$, $p = 0.00$). However, the chi-square value is sensitive to sample size; accordingly, the significance could be inflated. Therefore, using chi-square to degree of freedom ratio (χ^2/DF) to examine the goodness of fit is suggested. The χ^2/DF value of the SEM in this study is less than five, which is considered acceptable [46]. The comparative model fit indices revealed an adequate fit of the model to the collected data, and the estimates of the error term and residual between model and data were acceptable on the basis of the relatively small amount of residuals (RMSEA = 0.07). Therefore, the values of the various model fit indices supported the hypothesized structural modeling are shown in Table 7 [45-46].

Table 7. Goodness-of-fit of default model

| Indices | χ^2/DF | RMSEA | IFI | GFI | CFI |
|------------|-------------|--------|--------|--------|--------|
| Default | 2.59 | 0.07 | 0.96 | 0.92 | 0.96 |
| Sug. value | < 5 | < 0.08 | > 0.90 | > 0.90 | > 0.90 |

Note. $df=64$, $\chi^2=166$.

The second step of the SEM was to determine the magnitudes of the relationship between and among the proposed constructs. In those information technology service SMEs included in this study, leadership is normally a role assumed by the owners and upper-level managers. In addition, an enterprise’s systems and structures is generally established by the same authorities. In addition, an enterprise’s culture is always affected by the leadership and the management system established by the owner. Therefore, in the proposed model, leadership was considered as the independent variable; and systems and structures, culture, and communication climate were considered as mediator variables. Therefore, the following hypotheses were proposed:

H5-1: Among the hypothesized constructs, “leadership” variable has statistically significant positive effect on “culture” variable; H5-2: Among the hypothesized constructs, “leadership” variable has statistically significant positive effect on “learning motivation” variable; H5-3: Among the hypothesized constructs, “leadership” variable has statistically significant positive effect on “communication climate” variable; H5-4: Among the hypothesized constructs, “leadership” variable has statistically significant positive effect on “systems and structures” variable.

Figure 3 shows the magnitudes of the relationships among the proposed constructs. Thus, the results of the structural equation modeling analysis supported the acceptance of research questions H5-1 and H5-4, and revealed the direct effect that leadership has on culture ($\gamma_{31} = 0.58$, $t = 4.00$, $p < 0.01$) and systems and

structures ($\gamma_{41} = 0.89$, $t = 11.21$, $p < 0.01$) and that each were statistically significant. In addition, research hypotheses H5-2 and H5-3 were rejected, and the direct effect that leadership has on learning motivation ($\gamma_{11} = 0.09$, $t = 0.46$, $p > 0.05$) and communication climate ($\gamma_{21} = 0.28$, $t = 1.59$, $p > 0.05$) were statistically non-significant.

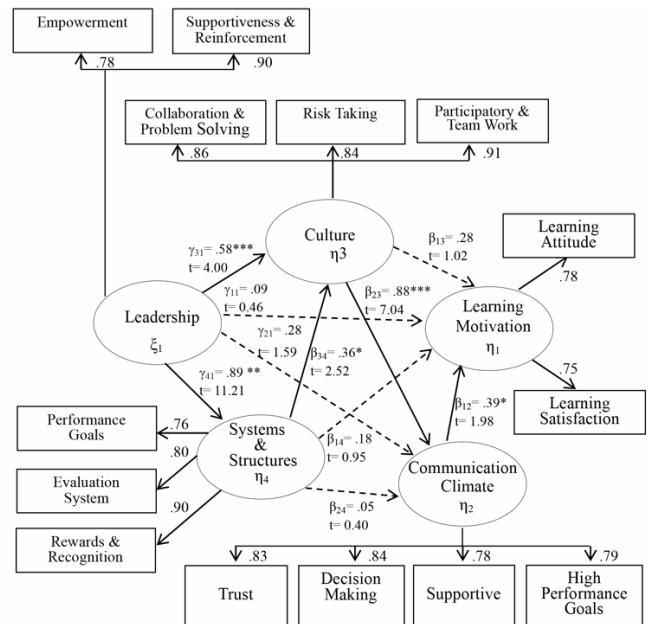


Figure 3. Path coefficient estimates of the described variables

In order to find out if the “systems and structures” variable has direct effects on the “culture”, “learning motivation” and “communication climate” variables the following hypotheses were proposed. H5-5: Among the hypothesized constructs, “systems and structures” variable has statistically significant positive effect on “culture” variable; H5-6: Among the hypothesized constructs, “systems and structures” variable has statistically significant positive effect on “learning motivation” variable; and H5-7: Among the hypothesized constructs, “systems and structures” variable has statistically significant positive effect on “communication climate” variable. The result support the acceptance of research hypothesis H5-5; therefore, an enterprise’s systems and structures has a statistically significant direct effect on culture ($\beta_{34} = 0.36$, $t = 2.52$, $p < 0.05$). However, the research hypotheses H5-6 ($\beta_{14} = 0.18$, $t = 0.95$, $p > 0.05$) and H5-7 ($\beta_{24} = 0.05$, $t = 0.40$, $p > 0.05$) were rejected. Furthermore, the result indicated that leadership affects communication climate and learning motivation indirectly through systems and structures, and culture. Therefore, establishing an effective reward system, setting learning goals, and creating a learning friendly environment are essential elements that often reinforce organizational learning. The structural equation modeling was further used to detect the effects of culture, systems and structures, and communication

climate on learning motivation. Therefore, the following hypotheses were proposed: H5-8: Among the hypothesized constructs, “culture” variable has statistically significant positive effect on “learning motivation” variable; and H5-9: Among the hypothesized constructs, “culture” variable has a statistically significant positive effect on “communication climate” variable. H5-10: Among the hypothesized constructs, “communication climate” variable has statistically significant positive effect on “learning motivation” variable.

The result rejected the research hypotheses 5-8 and revealed that culture ($\beta_{13} = 0.28, t = 1.02, p > 0.05$) was not statistically significant on learning motivation. However, the result supported hypothesis 5-9 and revealed that culture has statistically significant positive effect on communication climate ($\beta_{23} = 0.88, t = 7.04, p < 0.01$). In addition, communication climate was the only factor among the four variables that has a direct effect on learning motivation ($\beta_{12} = 0.39, t = 1.98, p < 0.05$), which supported research hypothesis 5-10. Table 8 shows the direct, indirect and total effects that leadership, systems and structures, and culture have on learning motivation. The total effect that leadership, systems and structures, and culture have on learning motivation was respectively 0.54, 0.30, and 0.62.

Table 8. The direct and indirect effects on learning motivation ($N = 225$)

| IV | Direct effect | Indirect | Effect | Total Effect |
|----------------------|---------------|---------------------|--------|--------------|
| Leadership | 0.09 | <i>via</i> Culture: | 0.16 | 0.54 |
| | | <i>via</i> CC: | 0.11 | |
| | | <i>via</i> SS: | 0.16 | |
| | | <i>via</i> SS – CC: | 0.02 | |
| Systems & Structures | 0.18 | <i>via</i> Culture: | 0.10 | 0.30 |
| | | <i>via</i> CC: | 0.02 | |
| Culture | 0.28 | <i>via</i> CC: | 0.34 | 0.62 |

4.4 Multicollinearity Examined

Multicollinearity is the degree of correlation among independent variables. It becomes a concern when independent variables are highly correlated among themselves. Normally, a correlation of 0.90 or greater between independent variables may indicate moderate to high intercorrelations [47]. In this study, multicollinearity has been examined, as a result, correlations ranged from 0.61 to 0.85. The Variance Inflation Factors (VIF) is an approach to verify if multicollinearity exists in a regression model in a manner that may adversely impact discriminate validity. It has been suggested that if the VIF exceeds numerical score of 10 a potential problem of multicollinearity may exist and over 30 reflects significant multicollinearity is problematic [47-48]. In

Table 9, the VIF values in this study ranged from 3.301 to 4.997. The results show that multicollinearity is not a problematic issue among all independent variables utilized in this study.

Table 9. Tolerance value and the VIF

| Independent Variables | Tolerance | VIF |
|-----------------------|-----------|-------|
| Leadership | 0.245 | 4.074 |
| Systems & Structures | 0.301 | 3.301 |
| Culture | 0.200 | 4.997 |
| Communication climate | 0.248 | 4.030 |

5 Conclusion

From the empirical analysis, communication climate in IT services enterprises is positively related to learning motivation, while leadership and organizational culture are not directly statistically significant. The findings support the belief that organizational communication plays a critical role in elevating employees’ learning motivation, and that it is important to connect management initiatives to communication climate and organizational learning. This important finding also supports that communication climate often reflects the level of satisfaction with personal and organizational issues. In addition, the SEM model shows that leadership and culture factors effect learning motivation indirectly through communication climate. This finding emphasizes to HR managers with greater clarity that communication climate is an important key element for the success of organizational learning and improved performance among the workforce.

5.1 Cross-generational Workforce Implications

Communication climate consists of perceptions of communicative events, human behaviors, responses of employees to one another, expectations, interpersonal conflicts, and opportunities for growth in the organization [17]. Therefore, an enterprise with a high-quality communication climate would provide a better working environment, and as a result, the climate serves as a catalyst to elevate employees’ learning motivation and job satisfaction. The latter becomes even more important when considering the entry of “Generation Y” (Millennials born between 1980 and 2000) into the workforce and the challenge HR managers confront to communicate to a group seeking work life balance [49]. Communication is a 24 hour experience for this age group. As such, it could be assumed that this segment of the workforce expects organizations to structure communication climates that support their need to find balance. This generation capitalizes on the ability to respond to one another, deal with expectations and conflicts and grow their organizations within an ever-evolving communication

climate. Further, multiple generations (Veterans, Baby Boomers, Generation X, and Millennials) of diverse people in organizations are now interacting frequently and “these organizational members are now having to learn how to communicate cross-generationally, and, viewing age as a culture, interculturally” [50]. Thus, the need for HR managers to monitor and maintain an appropriate and functional communication climate has never been more critical.

Based on the research framework and empirical analyses, this study reveals clarity on which employees’ characteristics affect organizational learning readiness variables. In addition, from the structural equation modeling results, this study facilitates a better understanding of the causal relationships between and among learning motivation and five organizational readiness variables, including leadership, culture, systems and structures and communication climate. This study has value as a reference for information technology services enterprises or any industry or non-profit where organizational learning is essential.

5.2 HR Managerial Implications

The results show that different levels of organizational learning readiness existed in different departments. As confirmed in the test of hypotheses 2, variances exist and employees in some departments should proactively engage with customers and co-workers to elevate levels of organization learning readiness. In addition, employees’ level of education in this study is not a key variable as confirmed in the test of hypotheses 4 that explains perceptions of organizational learning readiness. This finding confirms other exploratory investigations [21] outcomes related to organization learning readiness. However, this could be explained by the assumption that job satisfaction, job characteristics, and classification are stronger predictors of organizational learning readiness.

The results also suggest that an employee’s length of service with the enterprise, excluding those with 7-10 years of employment, indicate similar perceptions of organizational learning readiness. Subsequent to analysis with other factors, the researchers found those employees with 7-10 years of employment had lower levels of job satisfaction, especially those employees not serving in an administrator role. This finding suggested that job satisfaction is a strong variable that explains perceptions of organizational learning readiness, and accordingly, job satisfaction promotes learning motivation of an employee in the SMEs involved in this study.

Perhaps most importantly, the structural equation model in this study (see Figure 3) provides HR professionals with a compelling guide emphasizing how a healthy communication climate could positively alter the course of learning readiness and multiple

other desirable outcomes. The latter is further reinforced with the maintenance of appropriate leadership and systems and structures. Furthermore, organizational communication climate reinforces learning motivation and job satisfaction, which suggests that creating a learning environment, is essential for vigilant organizations that endeavor to adapt to the ever-changing demands of the consumer.

Specific to HR professionals in SMEs, this study avails each with an acute awareness and benchmark to begin the work needed to elevate levels of organizational learning readiness, improve the communication climate, develop and manage human resources, and enhance expertise and outcomes in the workforce. Correspondingly, each of these enterprises may increase their competitiveness and capacity to endure in this difficult economy via preemptive actions directed toward faster learning and improved performance.

Finally, the results of this study provide rationale for ensuring that HR theory and practices used in the United States, and perhaps other countries, should not be trivialized or referred to as pointless or unnecessary in other contexts. In fact, the existing conditions or constructs examined within these six enterprises in Taiwan may be quite common in multiple areas of Asia and perhaps elsewhere in the world. As such, this study reinforces the critical need to continually build cultures where HR’s fundamental focus on learning and improving performance begins with an examination of basic HR theory, research and practices. Ultimately this means that HR professionals must design, develop, and implement healthy systems and structures, leadership, culture, rewards and recognition, and a climate that generates effective communication.

5.3 Further Work

Further research with additional heterogeneous information technology services enterprises is needed to reinforce this study. Also, additional research should classify or inventory the specific organizational learning variables within SMEs and determine if similarities exist in other industry sectors.

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