

INVESTIGATING ORGANIZATIONAL OPEN INNOVATION CLIMATE AND RELATIONSHIPS**Yen-Cheng Chen**chen2907@ms53.hinet.net

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ABSTRACT

Cosmetology industry is an emerging business in Taiwan. As the domestic income grows and the cultural level elevated, cosmetology businesses become an indispensable part of daily lives of people. This study intended to implement an open innovation climate measure (OICM) to survey the innovative climate of cosmetology businesses. The study provided knowledge of how well do companies develop open innovation climate and how it relates to job satisfaction. Questionnaires complied with OICM and JDI measurement were used to survey service personnel working in different cosmetology companies in Taiwan. Clustering analysis found two distinct groups within the sample. Correlation analysis is executed between open innovation climate and job satisfaction. Company decision makers should consider the relations between open innovation climate and job satisfaction to establish an open innovative organization and improve the competitiveness of the company. Base on the clustering results, we have found a very interesting clustering among employees, and the managerial implications are given for managers in related businesses.

Keywords: *cosmetology, open innovation, job satisfaction*

1. INTRODUCTION

As a part of service industry, businesses (e.g. resort, day spa, beauty salon, hair salon, cosmetic school) in cosmetology are organizations providing various services such as body treatment, spa treatment and cosmetic treatment to improve body health, fitness and appearance. Typical treatments performed in these fields include but not limit to: aromatherapy, bathing, body wraps, facials, massage, nail care, nutrition guidance, skin exfoliation, yoga and waxing. The growing domestic income and recent development of leisure activities urged the booming of cosmetology businesses. According to research data from World Travel & Tourism Council (WTTC), travel and tourism total contribution to GDP was 8.865 billion USD in 1988 in Taiwan. The number doubled to 21.589 billion USD in 2011. Meanwhile, Taiwanese government encouraged development of tourism and cosmetology businesses by approving establishments of numerous vocational schools and colleges to cultivate professional human resources for this sector. Such vast market opportunity and relatively low entry barrier lead to intensive competitions from many homogenous rivals. It is common to observe spa clubs and massage parlors come and go in Taiwan. This phenomenon arouses the question of what kinds of companies can stay at the business and what cannot. Lopez-Cabrales et al. (2006) examined the role of core employees in firm competitiveness, and showed us how important of human resources are to firm competitiveness. Innovation also is considered one of the core competences of firms. Orfila-Sintes et al. (2005) also mentioned the role of human resources as a key competitive factor in service activities, that human factors is associated to capabilities of providing quality and featured services. Zaccaro & Banks (2004)

reminded us that three gaps exist between leadership research and practice. These researches explained how important innovation and human resources are for firms continue to thrive and maintain their core competences. In a research example of hotel innovation through renovations, researchers found that “improve hotel image” and “satisfying existing customers” are the most critical issues promoting renovation (Hassanien& Baum, 2002). It is most interesting to note that in this research, the biggest obstacle of hotel renovation came from hotel owners. Victorino et al. (2005) found various service innovations ranging from providing tangible equipment to customization services influence customer choices and satisfy different types of customers in hospitality industry. It suggested the types of innovations can well define where companies will go and how it ends. The significance of innovation and human resource to hospitality industry and, cosmetology industry which shares many common characteristics with it, is quite obvious as literature speaks. However, the importance alone does not tell us how successful innovative activities will be. It occurred to us of the thought that innovation is related to human resources. More specifically, how organization innovative climate relates to job satisfaction of employees. Knowing the answer may provide the insights of how entrepreneurs and managers should treat innovative activities in organizations, and how will it affect employees’ job satisfaction.

Cosmetology plays a major role in leisure, sport and hospitality industries. However, there are relatively few literatures concentrating on cosmetology businesses of their organization characteristic of innovation and job satisfaction. This study proposes to utilize a newly formed open innovation concept to examine the operations of cosmetology businesses in Taiwan. The service nature of cosmetology businesses also made job satisfaction quite crucial, as employees’ job satisfaction affects service attitude and tendency of employees to stay at the organization. Both service attitude and tendency to stay are the key differentiation methods for cosmetology businesses to achieve uniqueness and competence. Experienced service personnel are more likely to acquire the knowhow to understand and fulfill customers’ aspirations and needs. We referred to an open innovation climate measure (Remneland-Wikhamn and Wikhamn, 2011) (OICM) and job descriptive index (JDI) to create questionnaires including three open innovation climate constructs and five job satisfaction constructs. We used the questionnaire to survey employees working for cosmetology companies in Taiwan. The descriptive statistics can provide basic observations about open innovation and job satisfaction scores for these companies. Furthermore, a correlation analysis under the hypothesis that positive correlations exist between open innovation climate and job satisfaction should provide company managers some ideas when promoting open innovative climate in cosmetology companies. Managerial implications and detailed discussion were provided in the conclusion for managers and decision makers wanting to build open innovative climate and high job satisfactions for organizations.

2. LITERATURE REVIEW

2.1 Open Innovation Climate

The term open innovation, distinct from innovation, was coined by Chesbrough (2003). It describes how firms utilize inflow and outflow of knowledge to accelerate the expansion of market opportunity and the process of value creation. As said in Chesbrough (2004), open innovation suggests firms to play not only chess, but also poker. In chess, firms have to think several steps ahead. All resources of own firms and competing firms are known. While in poker, players have to change their moves when more resources are revealed. The resources of own firms and rivalry firms change all the time. Chesbrough et al. (2006) reported an increasing numbers of firms adopting principles of open innovation. Academically, open innovation also receives growing conference focuses and published in special issues (Gassmann et al., 2010; Huizingh, 2011; Lichtenthaler, 2011). Open innovation majorly influences the performance and continuity of businesses, and should be subjectively assessed. It involves in cosmetology firm’s ability to create new service products, implements new procedures and accept new ideas in from both outside and inside the company. Such ability is very important for firms to survive in fiercely competed market environments.

2.2 Job Satisfaction

Job satisfaction is the objective feelings of employees to their job in various perspectives e.g. payment, work condition, coworkers, supervisor. Two commonly implemented methods to measure job satisfaction are through single global rating and summation. Single global rating uses single construct and sums all item scores to assess job satisfaction. While summation utilizes multiple constructs to evaluate satisfaction in each construct by summing all item scores of each construct. Rating scales are commonly used to capture the intensity of feelings for a given item. The scores of the rating scale can be summed in measuring latent variable at later analysis. The relation between job performance and job satisfaction is well established in literature (Iaffaldano and Muchinsky, 1985; Judge et al., 2001). In a meta-analysis conducted over 74 empirical studies of job satisfaction and performance relation, a relatively low correlation 0.17 was reported (Iaffaldano and Muchinsky, 1985). More recent study of job satisfaction and job performance argued that

previous studies of meta-analysis had misinterpretation of their finding and a true correlation estimated 0.30 was provided between job satisfaction and job performance (Judge et al., 2001). The difference presented in the literatures should be considered when interpret the analysis result of job satisfaction. The happy-productive hypothesis was regularly examined in organizational theorem literatures by correlating job satisfaction and performance. Some positive results was found in Wright and Cropanzano (2000) which conducted two field researches to human service workers and juvenile probation officers and reported a comparative test of the relative contribution of job satisfaction and psychological well-being as predictors of employee performance. Bono and Judge (2003) examined the empirical evidence implying a positive relationship between core self-evaluation traits and the Big Five personality traits and the two central criteria of job satisfaction and job performance. Under most circumstances, the positive correlation between job satisfaction and performance were well established though some moderating effect may hinder the positive correlation.

Literatures also reported a positive connection between organizational innovative climate and job satisfaction. In a survey of more than 8000 employees of a large government service agency, job satisfaction was found positively related to the creativity and innovation climate Johnson and McIntye (1998). Another survey conducted in a sample UK manufacturing companies with data gathered from more than 3000 employees and 28 different manufacturing companies revealed that aggregate job satisfaction was significantly predicting subsequent organization innovation, even after controlling for prior organizational innovation and profitability Shipton et al. (2006). While open innovation is a new concept for organization, there are relatively few literatures discussing about open innovation and job satisfaction. Open innovation expressed a new innovation perspective where cooperating with outside companies, learning from outside and dynamically evaluate resources of self and competitor' are the keys of the open innovation.

3. MEASUREMENT AND METHODOLOGY

This study uses modified open innovation climate measure (OICM) (Remneland-Wikhamn and Wikhamn, 2011) and job descriptive index to survey employees of cosmetology businesses in Taiwan. The reason this study measured innovative climate instead of innovative culture is that organization climate is generally interpreted as surface manifestations of organizational culture (Schein, 1986; Denison, 1996) in light of the repeating patterns of practices and policies of the organization (Ahmed, 1998) and as aggregated perceptions of employees about their organizational events, practices and procedures (Rousseau, 1988; Schewartz and Davis, 1981) stated that organizational climate is a short-term measure of whether expectations are being met among the employees. While Dobni (2008) suggests four dimensions to measure for organizational innovative culture: (1) the intention to be innovative; (2) the infrastructure to support innovation thrusts; (3) the influence or the knowledge and orientation of employees; and (4) the environment or context to support implementation. However, organizational culture is not easily managed or measured for being cognitive and tacit. Therefore, Kunda (1992) argued that qualitative researches are best suit to realize organizational culture, whereas organizational climate is traditionally involving questionnaires and quantitative analyses (Denison, 1996).

Job satisfaction measured by job descriptive index (JDI) initially proposed by Smith et al. (1969) was extensively implemented, examined, revised and modified in literature (Ironson et al., 1989; Kinicki et al., 2002; Roznowski, 1989; Stanton et al., 2002). JDI is a well-developed and wide-implemented job satisfaction measure with overall reported internal consistency more than 0.7. This research used OICM and JDI to create questionnaires with 3 constructs, 17 items for open innovation climate; 5 constructs and 18 items for job satisfaction. Of totally 35 items in the questionnaires with basic information apart from the 35 items (e.g. age, seniority, number of companies worked for). Age was split into 5 categories: 1 for 20-29 years old, 2 for 30-39 years old, 3 for 40-49 years old, 4 for 50-59 years old and 5 for 60 years old and above. Seniority has five categories: 1 for 0-5 years, 2 for 6-10 years, 3 for 11-15 years, 4 for 16-20 years, 5 for more than 20 years. Number of companies worked for was classified into four classes: 1 for 0-3 companies, 2 for 4-6 companies, 3 for 7-9 companies, 4 for more than 10 companies. The 3 constructs in open innovation climate are innovation and flexibility, outward focus and reflexivity. The 5 constructs in job satisfaction are work, supervisor, coworker, payment and promotion. The questionnaire adopted a five-point Likert scale categorizing from 1 to 5, 1 for strongly disagree, 2 for moderately disagree, 3 for neutral, 4 for moderately agree and 5 for strongly agree. Sample was selected from employees of cosmetology companies in Taiwan with snowball sampling. The employee numbers of these companies are ranging from 20 to 100, of totally 19 companies. Subjects were surveyed and asked to bring questionnaires to their colleagues and supervisors. We retrieved totally 95 effective questionnaires out of 100. The responsive rate was 95%. The data collected was stored in computer for statistical analysis.

We implement statistic techniques including one-way ANOVA test, bivariate Pearson correlation analysis, reliability test of Cronbach's alpha statistics, factor analysis and k-means cluster analysis. We first applied reliability test and factor analysis to verify reliability and validity of proposed questionnaires. Second, we performed a bivariate Pearson correlation analysis to show relations among eight dimensions and demographical variables. Finally, we implemented a k-means cluster analysis to classify sample into two unique sub-groups and characteristics. We validate our clustering result of chosen sub-groups by a one-way ANOVA test. The following section provided detailed statistical results.

4. EMPIRICAL RESULT

4.1 Cluster Analysis

Due to our understanding to the industry and the attitude among employees that they may have different levels of satisfaction and opinion of innovation behavior, we suspected that subgroups may exist in our sample. Therefore, we applied a simple k-means clustering method to analyze the sample. The result, which is quite to our expectation, divided the sample into two distinct groups of 'junior' and 'senior'. Table 1 gave us an outline of these two groups. The first group, which we named 'junior', stands for employees who have the lowest levels for job satisfaction and less perceived to organizational open innovation climate. They were not satisfied with most aspects of their jobs, meanwhile, they were less perceived to organizational open innovation climate. Despite these dissatisfactions, they were still the backbones of their companies. It is essential to understand the reasons of their attitude for better competence of organizations.

The third group was named 'senior', which was consist of employees of older age and seniority. To the contrary, this group had the highest levels among all aspects. One may begin to think the significance of the fact that while senior employees were very satisfied with their job, payment and promotion, middle seniority and junior member were frustrated in terms of their job satisfaction and perception to open innovation climate. While senior members (highly possible to be supervisors and managers) perceived the organizations to be innovative and flexible, the rest of fellow members did not share the same vision. A good explanation may be that organizations invest much more resources financially and administratively to senior employees, and have relatively less resource on the rest. Junior members have little voice on organizational decision and are underpaid comparing to senior members. Organizations should pay attention to this phenomenon and decide whether or not it is best for organizational development.

4.2 Correlation Analysis

We performed a correlation analysis to better understand the relationships between each aspect. As we can find in table 3, all aspects from C1 to C8 were strongly and positively correlated to each other. This supported our assumption in which job satisfaction and open innovation climate were closely related. One exception was that C2 outward focus did not significantly correlate to C5 supervisor and C6 coworker.

Table 1. Clustering results

N=95	Cluster		
	1(n=63)	2(n=32)	Sig.
Age	2	4	.000
Seniority	2	4	.000
NoCW	1	2	.025
C1 (Innovation and flexibility)	2.75	3.41	.010
C2 (Outward focus)	2.99	3.45	.031
C3 (Reflexivity)	2.67	3.56	.000
C4 (Job)	2.80	3.59	.003
C5 (Supervisor)	3.20	3.52	.224
C6 (Coworker)	3.57	3.88	.182
C7 (Payment)	2.32	3.42	.000
C8 (Promotion)	2.40	3.56	.000

Table 2. Bivariate Pearson Correlations Matrix

	Mean	Std	C1	C2	C3	C4	C5	C6	C7	C8
C1 (Innovation and flexibility)	3.1	.80								
C2 (Outward focus)	3.4	.64	.322							
C3 (Reflexivity)	2.9	.85	.670 [*]	.271						
C4 (Job)	3.0	.76	.562 [*]	.381	.609 [*]					
C5 (Supervisor)	3.2	.70	.751 [*]	.18	.602 [*]	.511 [*]				
C6 (Coworker)	3.4	.80	.505 [*]	.02	.535 [*]	.613 [*]	.709 [*]			
C7 (Payment)	2.8	.88	.671 [*]	.443	.672 [*]	.679 [*]	.511 [*]	.629 [*]		
C8 (Promotion)	2.9	.97	.712 [*]	.379	.813 [*]	.711 [*]	.403 [*]	.405 [*]	.761 [*]	

Note: * significant level at $p < 0.05$, ** significant level at $p < 0.01$

5. CONCLUSION

This study utilized OICM and JDI to form a questionnaires and survey employees of cosmetology companies in Taiwan. OICM is used to understand open innovation climate and JDI for job satisfaction and provides possible strength and weakness review to the companies. We performed a clustering analysis and classified the sample into two distinct subgroups 'junior' and 'senior'. These two subgroups stood for the common status of companies in cosmetology industry faced. We implemented a robust analysis of one-way ANOVA to ensure the statistical significance of clustering result. Furthermore, a correlation analysis was conducted to find the links between open innovation climate and job satisfaction. We found significant positive correlations between variables of open innovation climate and job satisfaction. Base on the analysis results, we made the following suggestions to cosmetology companies' decision makers.

From the descriptive data of our analysis, relatively younger with less tenure employees are the major composition of the service personnel. The low tenure and high number of companies worked for suggests a high turnover rate of the employees. This is a potential problem for cosmetology companies, since their competitiveness lay in the workforce accumulated from experienced and enthusiasm employees. Decision makers should try to found the sources of dissatisfaction and improve them. Possible problems can be caused by work pay and promotion, as these two variables receives relatively lower scores in our survey.

We can see that all three variables of open innovation climate are highly correlated to supervisor variable in job satisfaction. This result emphasized the role of supervisors in building open innovative climate since higher open innovation climate is related to higher supervisor satisfaction. Managers or decision makers often play the role as supervisors. As they listen to the ideas of employees, the employees think their ideas are heard and companies are going to do something about the situation. This may be the reason why employees feel high open innovation climate and good supervisors at the same time. Managers should find this connection very critical when building open innovative climate and job satisfaction of employees.

Although this research provides survey results of open innovation climate and its relation to job satisfaction, the concept of open innovation is still new. Open innovation climate measure (OICM) was newly proposed by Remneland-Wikhamn and Wikhamn (2011) and there are relatively few literatures implementing and testing the OICM. There may still be some problems in the dimensions and single statements of OICM which needs to be validated and tested. This study implemented OICM and JDI to explore the open innovative climate connections to job satisfaction for an emerging cosmetology industry. However, the casual relation of the two was not touched in this study for it is associated with more complex variables and model building. Future studies can refer to this research as they find more variables to build a casual model of open innovation climate and job satisfaction for cosmetology industry.

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