

Applying Structural Equation Models to Study the Influence of Job Characteristics, Organizational Commitment, and Job Satisfaction : A Case of Construction Industry in Taiwan

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Abstract

Since the last decade, Taiwan industry faced with economical negative growth, because insufficient domestic demand and outward moving trend to China. The headquarters staying in Taiwan have to face even more harsh conditions, which come from the global market competition structure change and industrial development in straitened circumstances. Therefore, when introducing foreign labors is important competitive strategy on the whole business environment. This research investigates the implementation between job characteristics, organizational commitment, and job satisfaction as well as strength of their manifest indicator. Based on related literatures, this research using structural equation modeling to develop a framework. Using data collected from 440 foreign labors in construction industries. The data analysis methods included descriptive statistics, alpha analysis, confirmation factor analysis and structural equation model (SEM).

LISREL results revealed that two hypotheses were correct. The empirical results indicate that strong and positive relationship between job characteristics, job satisfaction and work satisfaction have a direct and indirect impact. But organization commitment from the "organizational characteristics" have an indirect impact, through the "organizational commitment" to strengthen and help improve the job satisfaction; Moreover, the findings suggest that job autonomy is better than others variable in job characteristics. Second, organization commitment is the most mediate variable in this model. Finally, organizational commitment mediates the effects of job characteristics on job satisfaction. A final structural equation model was developed yielding highly acceptable fitness statistics with $\chi^2=122.99$, D.F.=26, $P=0.000$, GFI=0.938, AGFI=0.889, RMR=0.016, RMSEA=0.078. Therefore, judged by the conventional criteria for acceptable model fitness, the research model was considered structurally fit.

Keyword: Job Characteristics, Organizational Commitment, Job Satisfaction, Foreign Labor, Construction Industry, Structural Equation Model (SEM)

Introduction

According to the Ministry of the Interior Construction and Planning Administration (2004) statistics show that construction industry labor input was reduced from 299,953 to 227,442 people, total 72,511 people were reduced by 24.17 percent from 1999 to 2003. Even if the economy improved in 2003, the construction industry remained a shortage of staff reached as high as 6.5 months (Directorate-General of Budget, Accounting and Statistics, Executive Yuan (DGBAS), 2004), which alternative, complementary for foreign workers has become the object of the industry and bring in a large number to fill the gap.

In view of foreign labors to come to Taiwan is the inevitable result of the labor shortage (Hui-Lin Wu, 2006), while the construction industry of foreign labors retention intention on job satisfaction with the wishes of the whole construction industry development and national economic, social labors, the unemployment rate can be said to have linked sexual the impact of the relationship. Thus triggering the foreign labors job characteristics, job commitment and job satisfaction in related research, with this study expect to foreign labors in the elections, training, education, use, leaving the surface of thinking structure and actions to get benefits in the construction industry of Taiwan.

The purpose of this research includes: (1) to discuss the elements of composing job characteristics, organizational

commitment and job satisfaction construct; (2) to focus on the influence of job characteristics for organizational commitment and job satisfaction; (3) to build up the structural equation modeling by job characteristics, organizational commitment and job satisfaction; and (4) to propose feasible tactics and suggestions to the managers in construction industries.

Literature Review and Research Hypotheses

Based on Steers(1977) proposed by the causes and effects of organizational commitment model theory: to predict the level of organizational commitment, including individuals personality, job characteristics and work experience; the consequences of organizational commitment by internal factors variables, including the willing to retention, the attendance rate and work performance. Landau & Hammer(1986) study indicated that capital, age, experience and job characteristics and organizational commitment have a significant impact Yu-Ling Hsiao and M.S. Lu (1996) are study also showed that work units of the organizations and professional experience(job characteristics), organizational commitment and organizational retention have significant impact, the following hypothesis is proposed:

Hypothesis 1: Job characteristics has positive effect on organizational commitment.

Labors engaged in their own interest in the work, the job characteristics of the work of a higher autonomy, the work of the integrity of the work of feedback and feedback with others, and their supervisors can effectively guide the work, as well as a clearer structure can lead to promote labors in the work of inputs and improve job satisfaction, the following hypothesis is proposed:

Hypothesis 2: Job characteristics has positive effect on job satisfaction.

In organizational behavior research, two variables of the most representative about subordinate reaction are job satisfaction and organizational commitment in the work attitude (Dirks & Ferrin, 2002), the former refers to the staff produced by an affective state for their work or work experience evaluation (Locke, 1976), the latter refers to the staff have a strong emotional attachment for organization in the psychological, is willing to identify and invest in organization, and look forward to continuing to retention in the organization (Meyer & Allen, 1997; Mowday, Porter, & Steers, 1982). The both are important, because job satisfaction and organizational commitment have related to employees in the organization efficiency (such as work performance, leave, absenteeism) is closely (Hellman, 1997; Meyer & Allen, 1997; Siefert, Jayarane, & Chess, 1991).

Therefore, this study uses organizational commitment and job satisfaction to be subordinates response. In fact, several studies have found that when a boss given charge of improper treatment of subordinates, the subordinates would have organizational commitment and job satisfaction to have a negative impact(Duffy, Ganster, & Pagon, 2002; Tepper, 2000), the following hypothesis is proposed:

Hypothesis 3: Organizational commitment has positive effect on job satisfaction.

Method

Sample

The sample consists of firms that operate foreign labors in construction industry, and to the domestic top 15 construction industry in foreign-owned enterprise labors. Sampled firms were contacted through telephone calls to confirm a contact person in each firm. Surveys were distributed to labors by manage foreign labor expertise directly to delivers foreign workers to fill the questionnaire. Of these 800 questionnaires were requests, 462 surveys were returned. After filtering invalid questionnaires, 440 valid questionnaires were collected. The characteristics of the sample structure in this research were male (100%). The ages were mainly between 31-40 (51.9%) and 41-50 (35%) years old. The most common degree of education was graduated from primary (53.4%), and the years in the industry were between 1-2 years (46.1%) and 2-3 years (25.9%).

T-tests results indicated that early respondents and late respondents showed no significant difference, which indicated that nonresponses bias was not a concern in this study (Joshi & Sharma, 2004).

Measures

We assessed all constructs as multi-item measures. All measures were obtained from a “self-report” questionnaire. Unless otherwise noted, we scored each item on a seven point scale, ranging from “strongly disagree (1)” to “strongly agree (5)”. The questionnaire was prepared in English, translated into Chinese by independent translators, and then backed translated into English to ensure accuracy and follow appropriate guideline (Brislin, 1970). Before delivering the questionnaire formally, we pretested with 3 scholars and 3 managers in a pilot study. Responses from the pretests ensured the relevance of the final measure. The mean, standard deviation and correlations for each dimension are shown in Table 1. Reliabilities for the all sub-dimensions have been demonstrated and the results are acceptable, with Cronbach’s $\alpha > .7$. Confirmatory factor analysis (CFA) was performed to justify that the measurement model achieves an acceptable fit to the data. A reliability test was followed by validity tests. The reliability test aims to examine the internal consistency of the items that are used to measure a latent construct. The composite reliability is the most commonly used evaluation index. The results of the reliability test conclude that the sampling data achieved an acceptable level, as the composite reliability coefficients of the five latent variables ranged from 0.82 to 0.88. These values were all over 0.7, which is the critical value recommended by Hair et al. (1998).

Table 1. Correlations and Descriptive Statistics (N=440)

	1	2	3	4	5	6	7	8	9
(1) Skill variety	.886								
(2) Task identity	.664(**)	.862							
(3) Task significance	.526(**)	.648(**)	.843						
(4) Autonomy	.522(**)	.574(**)	.640(**)	.865					
(5) Feedback	.434(**)	.477(**)	.646(**)	.648(**)	.879				
(6) Work commitment	.440(**)	.486(**)	.519(**)	.552(**)	.478(**)	.821			
(7) Social satisfaction	.445(**)	.500(**)	.506(**)	.523(**)	.417(**)	.603(**)	.911		
(8) Work related satisfaction	.294(**)	.327(**)	.318(**)	.393(**)	.410(**)	.470(**)	.509(**)	.901	
(9) Self-actualization	.242(**)	.539(**)	.496(**)	.541(**)	.494(**)	.552(**)	.688(**)	.585(**)	.932
Mean	3.183	3.371	3.339	3.313	3.215	3.376	3.402	3.144	3.289
Standard deviation	.607	.684	.653	.634	.628	.625	.605	.678	.611

1. all variables were measured by 5-point-scale.

2. ** significant at $p < .01$.

3. Diagonal entries are Cronbach’s alpha coefficient; others are correlation coefficient

Results

istics has positive effect on job satisfaction.

All hypotheses were tested using SEM (Maximum Likelihood Estimate, MLE). We used scale values as the indicator for each latent construct. The covariance matrix of scale scores submitted the data to Amos5.0. The path from the latent variable to the indicate (lambda X and lambda Y) was set equal to one in order to scale the latent variables. Second step adopts Anderson & Gerbing’s (1988) suggestion, the structural model include the main latent variables are exogenous variable and endogenous variable. In this research, the structural model of exogenous latent variable is job characteristics, which has five sub-dimensions: skill variety, task identity, task significance, autonomy and feedback; and there have two endogenous latent variables. One is organizational commitment, which has one sub-dimension: work commitment. Another is job satisfaction, which has three sub-dimensions: social satisfaction, work related satisfaction, self-actualization.

In this research, the main purpose is to build model among job characteristics, organizational commitment, and job satisfaction. We test the adequacy of the hypotheses divided into appraisal of theory model and hypothesis confirmation.

In appraisal of theory model, we follow Bagozzi & Yi’s (1988) suggestion by estimating theory model differenti-

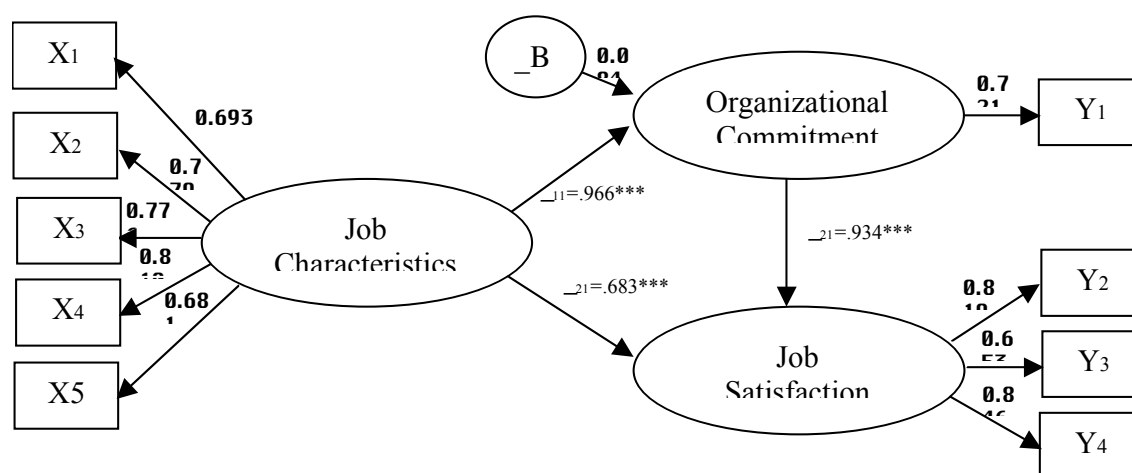
ate from aspects of preliminary fit criteria, overall model fit, and fit of internal structure of model. As preliminary fit criteria, the indicator of measure error can not present the negative value, and factor loadings (λ) are neither less than .5 nor more than .95. The results for the whole should be acceptable of the scope. The overall model fit statistics are also show in Figure 1. The model has available fit: $\chi^2 = 122.99$, $df = 26$, $p < .001$, CFI, GFI, AGFI, NFI, PNFI, PCFI and RMSEA are .952, .938, .889, .941, .941, .653 and .078, respectively. Furthermore, internal structure of model fits very well that each latent variables of composite reliability (CR) exceeded the .7 benchmark and the AVE exceeded the .5 benchmark. As a result, the CR of the job characteristics, organizational commitment, and job satisfaction are .921, .972, and .945, respectively; and AVE are .921, .952, and .913. All of two judgments meet the minimum benchmark.

At the part of hypothesis confirmation, Hypothesis 1 predicted that job characteristics have positive effect on organization commitment. This path estimate was significant ($\beta_{11} = .966$, $t = 12.474$, $p < .001$) indicating that managers who use adequately job characteristics will positively affect organization commitment. The simple correlation indicates using autonomy will has more effect on top role of organization commitment($r = .810$, $p < .01$). Furthermore, autonomy ($\lambda_{B14} = .774$, $p < .001$) is better than other variables (skill variety, task identity, task significance, feedback) for construction industry in Taiwan. Thus, support is found for Hypothesis 1.

Hypothesis 2 examined the relationship between job characteristics and job satisfaction. In support of Hypothesis 2, a significant path estimate was found between job characteristics and job satisfaction ($\beta_{21} = .683$, $t = 2.605$, $p < .05$), indicating that managers using job characteristics have positive effect on job satisfaction of labors. Further, labors feel to satisfy about organization, social satisfaction ($\lambda_{Y22} = .819$, $p < .001$) were the most important factor than work related satisfaction ($\lambda_{Y32} = .653$, $p < .001$) and self-actualization ($\lambda_{Y42} = .846$, $p < .001$) among three sub-dimensions.

Hypothesis 3 tested the relationship between organizational commitment and job satisfaction. As we predicated, a significant path estimate was found between organizational commitment and job satisfaction ($\beta_{21} = .934$, $t = 6.119$, $p < .001$), indicating that construction industries using organization commitment practices would improve the job satisfaction. Thus, Hypothesis 3 is received support.

Figure 1. Structural Equation Model of Job Characteristics, Organizational Commitment, and Job Satisfaction



1. ***significant at $p < .001$. All path estimates are from the completely standard solution.

2. Fit statistics: $\chi^2 (d.f.) = 122.99(25)$, $p < .001$, CFI = .952, GFI = .938, AGFI = .889, NFI = .941, PNFI = .653, PCFI = .915 and RMSEA = .078.

3. X1 = Skill variety, X2 = Task identity, X3 = Task significance, X4 = Autonomy, X5 = Feedback, Y1 = Work commitment, Y2 = Social satisfaction, Y3 = Work related satisfaction, Y4 = Self-actualization.

The comparison of direct and indirect effects of job characteristics and organizational commitment on job satisfaction for SEM is given in Table 2. As can be seen from Table 2, the total effect of job characteristics on job satisfaction is 8.72, which comprises contributions of the direct effect (equal to .683) and total indirect or mediated effect of

organizational commitment (equal to .189). Comparing the initiating structure of organizational commitment effect on job satisfaction of .934, it means that between the linkage of job characteristics and job satisfaction existing partial mediation effects on organizational commitment.

Table 2. Direct and Indirect Effects on Job Satisfaction

	Direct effect	Total indirect effect	Total effect (Direct + Indirect)
Job Characteristics	.683	.189	8.72
Organizational Commitment	.934	-	.934

Conclusions

This research contributes to develop the framework of implementation on job characteristics, organizational commitment and job satisfaction for instruction industries in Taiwan. The results of this research found that job characteristics positively affect organizational commitment. Further, it was found that job characteristics and organizational commitment both positively affect job satisfaction. The mediating role of organizational commitment between job characteristics and job satisfaction was also found.

Based on the review of relevant literatures (Steers, 1977; Landau & Hammer, 1986; Yu-Ling Hsiao and M.S. Lu, 1996; Hellman, 1997; Meyer & Allen, 1997; Siefert, Jayarane, & Chess, 1991, etc.), job characteristics are important to impact on commitment of the labors in the organization and to impact on job satisfaction of the labors. In this study, we explicitly built the framework and used structural equation model to test the model. The findings have several implications. First of all, the results of the investigation reveal that job characteristics bring strong and positively influence on organizational commitment. This research also confirmed that job characteristics are the antecedence of organizational commitment. Moreover, autonomy of job characteristics had more directly positive effect to organization commitment than that of others variables of job characteristics for foreign labors. To show that foreign labors attached importance for the autonomy of the work. These results suggest that managers need to adopt autonomy style of job characteristics in order to bring best result in organizational commitment and job satisfaction.

Secondly, it was found that organizational commitment has positive influence on job satisfaction. This result implies that managers may stress work commitment leads to job satisfaction for foreign labors. Furthermore, there has interesting findings that the effect between job characteristics and job satisfaction might be largely transmitted by direct and indirect influence of organizational commitment, which means that organizational commitment was the mediation variable in this model. Although several studies explained organizational commitment as a psychological state linking labors to their organizations. Further, autonomy style of managerial behavior is more effectiveness, as labors would be more committed to the organization.

Finally, we have verified that the core principles of organizational commitment include work commitment. The senior managers play an indispensable role in job satisfaction of the labors. Lead to "career commitment" for labors in the workplace attitudes and behavior. At the same time, the labors are willing to identity organization and active to involve his work.

Despite the contributions of the model building in this research, there are some limitations that should be considered when interpreting the results. The first limitation is the problem of external validity, i.e., the ability to generalize the results outside Taiwan. Second, we include only the construction industries and the margin of error that lies in generalizing the conclusions in this study for other types of industries.

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