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Knowledge Management and Organizational Learning in Food Manufacturing Industry

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Abstract

The main purpose of the study is to establish the relationship of knowledge management and organizational learning in food industries. The conceptual framework proposed in current research is to creative model that contributed relevant theories of knowledge management, organizational learning, and relationship between it. Some literature will be studied and we will try to justify the organizational theories in food industry. Total of 168 companies in food industry were selected from Taiwan, China, and Malaysia and structural equation modelling (SEM) is applied to test the hypotheses in the research model. Three dimensions include knowledge acquisition, knowledge conversation, and knowledge applications are applied for knowledge management processes. Four main dimensions will be discussed which are management commitment, system perspective, openness and experimentation, and knowledge transfer and integration as definition of organizational learning. The research model includes two constructs including knowledge management & organizational learning and two measurement variables include firm age and firm size. The results showed that,

knowledge management and organizational learning have significant positive relationship. Moreover, firm age and firm size are moderators between two constructs in the research model.
Key words: Knowledge management, organizational learning, structural equation modelling, moderation analysis

1. Introduction

Food industry is considered as one of the knowledge-intensive sectors explain by its considerable amount of knowledge input, short life cycles of product, high customized products demand and significant production value. The survey results of knowledge-intensive manufacturing food companies in Malaysia, Taiwan and China.

This research uses Structural Equation Modelling (SEM), the most general multivariate method introduced by Jöreskog (1967) to study the casual organizational characteristics influence on the performance of manufacturing companies. By extension, SEM is also used in the analysis of multiple regressions, factor and path analyses, latent variable analysis, covariance structure analysis and confirmatory factor analysis. SEM is an outcome of multi equation models resulting from econometrics and measurement models from psychology (Black et al., 2010).

Knowledge is not only an important resource for an organization, but it also serves as a fundamental source of competitive advantages (Jaworski and Kohli, 1993, Gold et al., 2001). There has never been a unified single definition of knowledge for organizations (Yu, 2010). Nonaka (1994) and Polanyi (1962) believe that two types of knowledge exist, namely; explicit knowledge and tacit knowledge.

Learning ability is a natural talent in every normal human being through which he/she can adapt himself/herself to the dynamic environments surrounding him/her. It is through learning that human beings arrive at new concepts and insights that guide them to effective decisions for appropriate reactions and immediate correction of mistakes and errors (Argyris and Schon, 1978). As part of human nature, the role and impact of learning extends to our business and career and consequently, its quality determines the rate of success in our organizational tasks.

According to Garratt (1990), a learning organization is the application of organizational development and learning, therefore, in order to come to consumers' satisfaction, it is necessary for the organization to develop its personal and group learning abilities. Moreover, organizational learning is considered as a dynamic process based on knowledge, implying moving along the different levels of action, from the individual to the group levels, and then to the organizational level and back again (Huber, 1991). As viewed by other studies, Ke and Wei (2006) have discussed and identified knowledge as the antecedent and the base of organizational learning.

2. Research Design And Hypothese

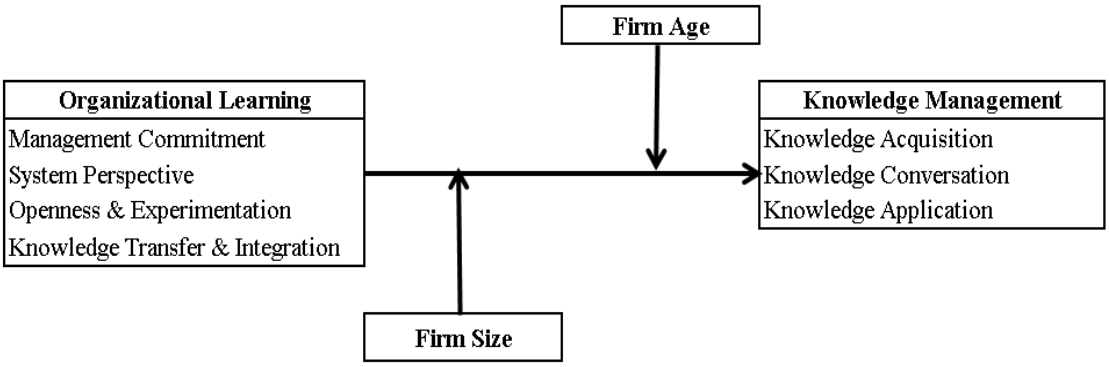
In this study, a system perspective is utilized that considers the knowledge management as a significant input and organizational learning as an ultimate output. Moreover, firm age and size as two moderators in this relation. As per the relevant literature, the current study builds up a framework for research as displayed in Figure 1. The approach employed by this study to develop a research model is structural equation modeling (SEM). SEM recently been employed widely in different fields including knowledge management (Nejatian et al., 2011, Hui et al., 2013d), organizational learning (Radzi et al., 2013, Hui et al., 2013c), total quality management (Vranakis and Chatzoglou, 2011), organizational innovation (Radzi et al., 2013, Hui et al., 2013b), Enterprise resource planning (Qutaishat et al., 2012), supply chain management (Jenatabadi et al., 2013, Ruteri, 2009, Deshpande, 2012), leadership style (Hui et al., 2013a), and airline performance modeling (Jenatabadi, 2013a, Jenatabadi, 2013b).

We use KM model proposed by (Gold et al., 2001) who defined knowledge management as three processes including knowledge acquisition, knowledge conversation and knowledge application. According to the definition, organizational learning refers to activities which firms perform to transform learning capabilities of both competitors and individuals (Jerez-Gomez et al., 2005). Organizational learning has four dimensions, namely: management commitment, system perspective, openness and experimentation, and knowledge transfer and integration. Three dimensions of

organisational performance; financial, marketing, and partnership performance are applied based on Emden et al. (2005) study.

A quantitative research survey is employed to examine the hypotheses proposed in the research framework. The data collection period spanned between October 2012 and February 2013 for a period of five months. The prepared questionnaires were distributed among 650 randomly selected from food manufacturing in Malaysia, Taiwan, and China. Senior manager, director manager, or CEO, were chosen as the key informants. Only 168 food manufacturing companies returned the completed (without missing and outlier data) questionnaires which provided this study with a response rate of 26%.

Figure-1. Research Model



We have two research hypotheses. These are;

H_1: There is a positive relationship between Knowledge management and organizational learning in manufacturing food industry.

H_2: Firm age and size are moderators in the relationship between knowledge management and organizational learning.

3. Results

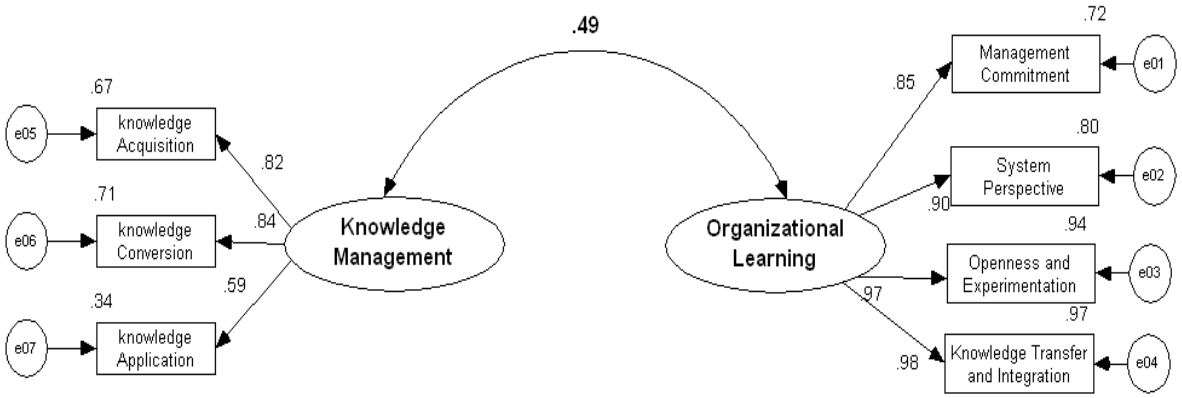
The correlations of variables are displayed in Table 1. As shown in this table, the research variables have significant interrelationships between together.

Table-1. Correlation between indicators

Variables	KM1	KM2	KM3	OL1	OL2	OL3	OL4
KM1	1.00						
KM2	.408	1.00					
KM3	.201	.563	1.00				
OL1	.257	.345	.512	1.00			
OL2	.663	.562	.632	.562	1.00		
OL3	.477	.529	.676	.782	.562	1.00	
OL4	.512	.479	.553	.637	.352	.763	1.00

The results of research model presents the overall path model fit and the all hypothesis. The statistic indicators of path analysis proof an adequate fit: adjusted goodness-of-fit Index [AGFI] =0.932; incremental fit index [IFI] =0.902; comparative fit index [CFI] =0.911; goodness-of-fit index [GFI]=0.937; normed fit index [NFI]=0.908; Tucker–Lewis index [TLI]=0.929 and root mean square error of approximation [RMSEA]=0.031. The relationship between knowledge management and organizational learning is significant (see figure 2).

Figure-2. Structural Model Results



4. Moderation Analysis

Finally, as per $H_{2,}$ firm age and size play the role of moderator on the linkage between knowledge management and organizational learning. To evaluate the moderation effects of firm age and size, this paper utilizes the two-group comparison of path model. For this purpose, the database are divided into two type of companies along the each factor level`s median. Therefore, food companies with moderators of higher grades are involved in one group, call it higher age (or older) or higher size (or bigger), and those with lower grade moderators are categorized in another group which is called lower age (or younger) and lower size (or smaller).

To examine the differences in firm size and age among the regression weights, the Critical Ratio (C.R.) test ($> \pm 1.96$, $p < .05$) should be used to obtain the statistics of the critical ratio for the differences among regression weights of subjects of lower and higher sizes or ages (Ho, 2006). As Arbuckle and Wothke (1999) state, the critical ratio of an estimate pair tests the hypothesis to arrive at confirmation of the two parameters` equality.

Table-2. Moderating test

Moderator	Overall model	Low	High	C.R. (difference)
Firm Size	0.49**	0.19*	0.57**	6.77**
Firm Age	0.49**	0.24*	0.10	4.16*

*P < 0.05; **P < 0.01.

The findings of this study confirm that in Asian manufacturing food industry, knowledge management and organizational learning are positively interlinked and this positivity is extendible to all the groups although this linkage is stronger in older and bigger. The obtained conclusion in this section is in line with the findings of the previous researches as reflected in the literature.

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