
The Influence of Learning Organization on Organizational Innovation and Organizational Performance Relationship: The Case of Ecology Industry

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Abstract

Organizational learning could enhance organizational innovation to become the persistent source of competitive advantages in ecology industry. Continuous innovation could result in good organizational performance, and a successful enterprise would be a learning enterprise. For this reason, learning organization is a strategy of corporate competitive advantages in ecology industry. With literature review, the contents and evaluation of learning organization, organizational innovation, and organizational performance are discussed in this study to establish the conceptual research structure and explain the operational definitions of dimensions and variables. Taking supervisors and employees of ecology industry in Kaohsiung Taiwan as the research object, the questionnaire survey is used for collecting data to analyze the effect of learning organization on organizational innovation and organizational performance. The research conclusions are summarized as below. 1. Learning organization shows significantly positive effects on organizational innovation. 2. Organizational innovation reveals remarkably positive effects on organizational performance. 3. Learning organization appears notably positive effects on organizational performance.

Keywords: learning organization, organizational innovation, organizational performance, ecology industry

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INTRODUCTION

The environment is changing with the time, anyone and anything are changing, while the only unchanged is change. In face of the global competition and threats in the 21st century, an enterprise has to constantly learn, reengineer, and innovate to exceed the competitors and continuously lead in the fiercely and rapidly changing environment. To cope with changes in environment, workplaces, customers, and workers, traditional organizations could not cope with such challenges without adjustment and transformation; merely knowledge, strategies, leadership, and technology could lead to the success. Under the large environment, the competition strategies of an enterprise contain red ocean strategy and blue ocean strategy. Red ocean refers to an enterprise compete with the competitors with low prices after the profit reduction; blue ocean, on the other hand, refers to an enterprise creates the market space without competition. Regardless the strategy

trend of an enterprise, the creation of the growth and profitability of an enterprise is the premise. A leader presenting innovation capability in the organizational management and technology R&D could create valuable competitiveness and the sustainable management of the enterprise.

In the fiercely changing environment, organizational learning has become essential for the survival of an organization. Presenting faster and more effectively organizational learning than competitors becomes the tactic for an organization coping with rapidly changing economic business environment and maintaining competitive advantages. However, innovation is often the outcome after learning. Organizational learning could facilitate organizational innovation to become the source of persistently competitive advantage and constantly innovation for favorable organizational performance. In the market business, it is either innovation or death. A successful

enterprise has to constantly pursue innovation and changes to avoid being eliminated. Winning appears on maintaining flexible and rapid responses to customer needs and continuous and constant product and service innovation. Especially, under the rapid changes in globally economic environment, ecology industry has to enhance the trend of learning organization and transform into learning organization to cope with the changes in economic situations. It becomes the most influential idea contemporarily. A really outstanding enterprise would be able to have the members fully engage in the organization and present capability of constant learning. The only persistent advantage of an enterprise is the capability to learn faster than the competitors. A successful enterprise would be a learning enterprise that learning organization is a strategy for the competitive advantage of an enterprise. The effect of learning organization on organizational innovation and organizational performance is therefore discussed in this study.

LITERATURE REVIEW

Learning Organization

A learning organization refers to an organization being able to constantly learn and apply systematic thinking model to try various problem-solving programs, reinforce and expand personal knowledge and experience to change overall organizational behaviors, and enhance organizational adjustment and innovation capabilities (Lopez et al. 2016). Ahmad and Zabri (2016) regarded “learning” and “change” as the core concepts of learning organization, which was full of creation and learning culture, could encourage the members learning and development climate, cultivate organizational members’ creative thinking ability, combine personal and organizational development objectives, and achieve the common vision through team learning, systematic thinking, and knowledge innovation (Wales 2016). Daft (2016) mentioned that organizational members in a learning organization could constantly break through the capability, create the desired result, cultivate brand-new, foresighted, and broad thinking, fully implement common vision, and constantly learn for cooperative learning. Barazandeh et al. (2015) indicated that a learning organization is an organization with constant learning and transformation whose learning started in the members, work teams, overall organization, and other communities interacting with the organization. The combination of learning and work could be a continuous process, and the learning result would result in the changes of knowledge, belief,

and behavior as well as reinforce organizational innovation and growth capabilities.

Referring to Chen et al. (2017), the core ideas extracted for learning organization contain

- (1) **Vision of the whole:** Vision of the whole refers to the ability of all organizational members’ common goal, vision, or objective. The establishment could be the focus and energy for learning, i.e. the generation of creative learning, rather than purely adaptive learning.
- (2) **Teamwork:** Teamwork refers to the mutual learning and cooperation among team members. Teamwork is the technology to develop team strength and have group strength exceed the sum of individual strength and could assist people in confirming problems through the cooperation with different systems to effectively grasp changes.
- (3) **Self-transcendence:** Self-transcendence aims to expand personal ability, break through the limit for self-fulfillment, and objectively observe the real condition. Self-transcendence is the spiritual basis of learning organization.

Organizational Innovation

Chen et al. (2015) regarded innovation as the creation of new product, service, and process of a business. Patel et al. (2015) pointed out innovation as a new product or service, a new processing technology, a new management system and structure, or a new plan of organizational members. The adoption of a new idea or behavior was relatively new for an organization, including new products, new service, new technology, or a new practice (Göksoy 2015). Alanoğlu and Demirtaş (2016) stated that, to cope with environmental changes, an organization adopted new ideas, behaviors, or forms, including incremental and radical innovation, innovation activity, covering equipment, techniques, and products, and management innovation of systems, culture, service, and ideas. Marwan et al. (2016) included strategy, technology, and management in organizational innovation. Strategy innovation stressed on new products, new service, and new markets to promote customer satisfaction. Technology innovation was to increase the function or change of products to enhance the product attraction. Management innovation referred to forming new ideas for work business, systems, education and training.

Referring to Chin and Chuang (2015), organizational innovation is divided into

- (1) **Management innovation:** the innovation composed by management strategy and organizational system and structure.
- (2) **Technological innovation:** containing the innovation of products, operation processes, and product creativity and techniques.

Organizational Performance

Tsou et al. (2015) regarded organizational performance as a concept, rather than an idea, which could explain organizational performance by the abstract deduction with a system model and theoretical concept accurately collecting data or the establishment of performance indicators. Bahramnejad et al. (2015) considered that "performance" was the measurement of the attainment of organizational objectives and the attainment of the mission, objective, and purpose of a plan presented with indicators and measuring methods. Murtedjo and Suharningsih (2016) concluded that the achievement of objectives could be judged from outputs, the effective acquisition of systematic resources for high performance could be judged from sustainable development, and the internal process of effectiveness could be evaluated from internal activity. Cyfert and Krzakiewicz (2016) indicated that there was not an authority definition of organizational performance, which was generally comprehended as the concentration performance of organizational functions and effects, reflecting the fulfillment of organizational objectives. It also realized that organizational performance was a comprehensive indicator. Tran and Pham (2016) argued that the point of research on business management was business performance that it was a major objective of business research to find out the notable factors in business performance for the reference of manager making strategies (Halim et al. 2015).

Referring to Tsou et al. (2015), performance is generally highly correlated with objective financial performance to measure organizational performance with cognition.

- (1) **Managerial performance:** the quality and development of products/service or programs, the capability to attract and retain excellent employees, customer or agent satisfaction, manager and employee relationship, and general employee relationship.

- (2) **Market performance:** the marketing, sales growth, profitability, and market share of a company in past three years.

RESEARCH HYPOTHESIS

Rahman et al. (2015) considered that a learning organization could cultivate new thinking patterns and insight. Daft (2016) pointed out real learning as enhancing organizational innovation capability and being able to do what an organization could not do in the past. Titrek (2015) pointed out the key elements of innovation organization as vision, leadership and innovation intention, proper organizational structure, efficient teamwork, continuous devotion to personal development, multi-directional communication, creativity culture, as well as high involvement and support of innovation. Chen et al. (2017) pointed out learning organization as the primary task of innovation. A learning organization created "change-oriented" environment, in which the members' creativity was properly induced and cultivated. Adaptive learning was not enough for a learning organization; it should combine with innovative learning to strengthen the organization capability of creating future. A learning organization therefore stresses on organizational learning and innovative learning (Schuurman et al. 2016). The hypothesis is proposed in this study.

H1: Learning organization reveals positive and remarkable effects on organizational innovation.

Chen et al. (2015) indicated that innovation was to differentiate the value line of a bank from the competitors to strive in the homogeneous market and enhance organizational performance. Robbins and Judge (2016) indicated that an organization with management and technological innovation presented higher organizational performance than those without innovation. Alanoğlu and Demirtaş (2016) regarded organizational innovation as the learning process of an organization coping with environmental changes. Chin and Chuang (2015) also pointed out innovation as an organizational change and a complicated learning process through which an enterprise had to continuously develop innovation capability to enhance the organizational performance (Shahadan and Oliver 2016). Accordingly, the hypothesis is proposed in this study.

H2: Organizational innovation shows positive and significant effects on organizational performance.

Table 1. Fit analysis or research model

Fit Indices	acceptable range	this research model	model fit judgment
χ^2 (Chi-square)	the smaller the better	23.55	
χ^2 and degree of freedom ratio	<3	1.41	accordance
GFI	>.9	0.96	accordance
AGFI	>.8	0.82	accordance
RMSEA	<.08	0.05	accordance
CFI	>.9	0.93	accordance
NFI	>.9	0.91	accordance

Tsou et al. (2015) discovered that a team could enhance organizational performance through learning and free creative thinking. Teece (2016) pointed out the positive and significant effects of organizational learning intention on innovation capability and innovation capability on organizational performance of an enterprise. Bahramnejad et al. (2015) described a learning organization as an organization with constant learning and transformation and the learning starting at the members, work teams, and entire organization, and even in the communities interacting with the organization. Learning was the process of continuous and strategic application and was combined with work. Learning results would change knowledge, belief, and behavior and enhance organizational performance (Rosmaniar and Marzuki 2016). Murtedjo and Suharningsih (2016) considered that, under the same organizational condition, a learning organization could enhance organizational performance. Visser and Toghiani (2016) discovered that organizational learning would guide organizational innovation; especially in knowledge-intensive industries, individual and organizational learning would lead to innovation and further enhance organizational performance. In this case, the hypothesis is proposed in this study.

H3: Learning organization presents positive effects on organizational performance.

SAMPLE AND MEASUREMENT INDICATOR

Research Sample and Object

Aiming at ecology industry in Kaohsiung Taiwan, the supervisors and employees are distributed 480 copies of questionnaire, and 346 valid copies are retrieved, with the retrieval rate 72%.

Reliability and Validity Test

Confirmatory Factor Analysis (CFA) is an important part in SEM analysis. For this reason, the measurement model should be tested before the structure model evaluation for the two-phase model modification during CFA. When the measurement model fit is acceptable, the second-step SEM is preceded. The factor load of dimensions in the model appears in

.65~.86, the component reliability shows .75~.90, and the average variance extracted reveals .60~.70, conforming to the standards of 1.factor load higher than .5, 2.component reliability higher than .6, and 3.average variance extracted higher than .5. The dimensions therefore present convergent validity.

EMPIRICAL RESULT ANALYSIS

Structure Model Analysis

Structure model analysis includes goodness-of-fit analysis of the research model and the explanation power of the entire research model. Referring to researchers' opinions, 7 numerical indicators are used for testing the overall model fit, including chi-square (χ^2) test, χ^2 -degree of freedom ratio, fit indices, adjusted fit indicators, root mean square of mean approximate error, comparative fit index, comparative hypothesis model, and chi-square difference of independent model. The overall result analyses are organized in **Table 1**.

Accordingly, χ^2 -degree of freedom ratio is used for testing the model fit, which is considered the smaller the better. The χ^2 -degree of freedom ratio of this model shows <3 (1.41). GFI and AGFI are better close to 1, and no absolute standard is used for judge the model fit; GFI>.9 and AGFI>.8 are acceptable. This research model reveals GFI .96 and AGFI .82. RMSEA in between .05 and .08 stands for good model and reasonable fit. RMSEA of this study shows .05. The allowable standard of CFI is >.9, and CFI of this model appears .93. NFI is better higher than .9, and NFI of this research model reveals .91. Overall speaking, the fit indices conform to the standards, revealing the model being acceptable. The research samples therefore could be used for explaining the real observation data.

From above overall model fit indices, the model structured in this study presents favorable overall fit with observation data, showing that the theoretical model could fully explain the observation data. The correlation coefficients and coefficient estimates of learning organization to organizational innovation and

Table 2. Overall linear structure model analysis result

evaluation item	parameter/evaluation standard	result	
preliminary fit	learning organization	vision of the whole	0.73*
		teamwork	0.71*
		self-transcendence	0.74*
	organizational innovation	management innovation	0.78**
		technological innovation	0.76**
	organizational performance	managerial performance	0.80**
market performance		0.79**	
internal fit	learning organization→organizational innovation		0.87**
	organizational innovation→organizational performance		0.85**
	learning organization→organizational performance		0.86**

Note: * stands for $p < 0.05$, ** for $p < 0.01$, and *** for $p < 0.001$

organizational performance could be further understood.

The research data are organized in **Table 2**. The overall model analysis results reveal that the three dimensions of learning organization (vision of the whole, teamwork, and self-transcendence) achieve significant explanation of learning organization ($t > 1.96$, $p < 0.05$), two dimensions of organizational innovation (management innovation and technological innovation) could remarkably explain organizational innovation ($t > 1.96$, $p < 0.05$), and two dimensions of organizational performance (managerial performance and market performance) reach notable explanation on organizational performance ($t > 1.96$, $p < 0.05$). Apparently, the entire model presents favorable preliminary fit.

In regard to internal fit, learning organization shows positive and remarkable correlations with organizational innovation (0.87, $p < 0.01$), organizational innovation reveals positive and notable correlations with organizational performance (0.85, $p < 0.01$), and learning organization appears positive and significant correlations with organizational performance (0.86, $p < 0.01$) the H1, H2, and H3 are supported.

CONCLUSION

The research results reveal that ecology industry is facing fierce challenges in the 21st century. Creating ecology businesses to become learning organizations to cope with the needs becomes primary. To establish a ecology business as a learning organization, individual old mental model should first be transferred into integrated systematic thinking, mutual cooperation and experimental spirit, and healthy management program; and, systems should be established in an organization to encourage the cooperation and growth of the personnel. A learning organization is an entity of life, in which organizational members form good organizational climate and organizational culture through common

learning and individual development as well as cultivate the capability of transformation, continuity, and changes in the learning process in order to enhance the constant organizational innovation and further grasp the time trend and adapt to the social change.

RECOMMENDATIONS

By organizing the important research results and findings, the following practical suggestions are proposed in this study.

1. A manager in an ecology business should encourage the employees for multiple learning and being brave of taking adventure to break through themselves so as to enhance the team competitiveness. A manager should concern more about and respect the employees to enhance teamwork as well as induce individual potential to devote to the organizational vision in order to create excellent organizational teams. A manager should share and guide the employees with personal experiences to induce the ideas and create distinct technological capabilities and management thinking.
2. A manager in an ecology business should encourage decision-makers and executors to transform into learners, explorers, and communicators to promote mutual cooperative learning, share experience, discuss and induce higher learning level, and promote the members' common cooperative learning so as to promote the organizational innovation competitiveness.
3. An ecology business should create as a learning organization. Rewards would appear positive reinforcement. Without rewards, an ecology organization would develop toward learning organization. In practice, a reward mechanism of an organization should be internally fair, rather than pursue external or market-based fair, to receive the expected effectiveness.

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