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Does Organizational Learning Lead to Higher Firm Performance? An Investigation of Chinese Listing Companies

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Does organizational learning lead to higher firm performance?

An investigation of Chinese listing companies

Investigation
of Chinese
listing
companies

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Abstract

Purpose – The purpose of this paper is to develop a framework for studying organizational learning, firm innovation and firm financial performance.

Design/methodology/approach – This paper examines the effects of organizational learning on innovation and performance among 287 listed Chinese companies.

Findings – The results indicate a positive association between organizational learning dimensions and firm performance (both objective financial performance and perceptual innovation measure).

Research limitations/implications – The sample includes only firms for which secondary data are available. Different results might have been obtained if we include smaller, private firms into the sample. This paper only includes a limited number of measures of financial performance to assess the relationship between organization learning dimensions and firm performance. Therefore, researchers are encouraged to test the proposed propositions further with different performance measures.

Practical implications – The results showed that it is the combination of several learning characteristics and not a single dimension that influenced the variance of firm performance. The findings reinforce the notion that systemic interventions that address a variety and different combinations of learning organization characteristics will be more likely to be successful than interventions that solely focus on singular or a limited number of dimensions.

Originality/value – The integration of objective measures of firms' financial performance with perceptual survey data represents a unique methodology that has not been widely used in the organizational learning literature. The positive correlations between the eight learning dimensions and the measures of firms' performance lend credence to the efficacy of the organizational learning concepts.

Keywords Organizational learning, Performance, Firm capabilities

Paper type Research paper



Introduction

In the business world, few managers would disagree with the statement that organizations facing uncertain, changing or ambiguous market conditions need to be able to learn. However, the learning process is not that easy and straightforward. To

cope with the uncertainty in the world oil markets in the 1980s, the petroleum company Shell's planners re-conceptualized their basic task as fostering learning rather than devising plans and engaging managers to ferret out the implications of possible scenarios. Institutionalizing the learning process conditioned the managers – or so they thought – to be mentally prepared for the uncertainties in the environment. However, ironically, the company executives were found to knowingly have hidden a massive shortfall in oil and gas reserves. This provides a classic example of how difficult the learning process is, even with built-in intent (Kransdorff, 2006).

Along with managers' concern of organizational learning in business practice, the analysis of organizational learning has become an increasingly important study area over recent years. According to Fiol and Lyles (1985), Huber (1991) and Shrivastava (1983), the organizational learning literature is fragmented, consisting of multiple constructs and little cross-fertilization among pockets of scholars. The definitions of organizational learning found in the literature include a psychological approach (Cyert and March, 1963; Daft and Weick, 1984), a sociological approach (Nelson and Winter, 1982; Levitt and March, 1988) and an organizational theory approach (Cangelosi and Dill, 1965; Senge, 1990b; Huber, 1991). According to Sense (2004, 2007), organizational learning includes both cognitive aspect and situated aspect. Social cognitive theory (Bandura, 1977 and 2002) claimed that portions of an individual's learning can be directly related to observing others within the context of social interactions, experiences and outside media influences. According to Lave and Wenger (1992), learning should not be viewed as simply the transmission of abstract and decontextualized knowledge from one individual to another but a social process whereby knowledge is co-constructed. That is, the situated aspect of learning relates to the practical and social aspects of learning within the context. More recently, organizational learning has been discussed from a strategic perspective, especially a resource-based view, as a source of sustainable competitive advantages (Grant, 1996; Lei *et al.*, 1996; Lei *et al.*, 1999). We use the definition of organization learning, from this latter approach, as the capability of an organization to adapt to its environment (Hedberg, 1981). This definition also follows the insights of Huber (1991): "an entity learns if, through its processing of information, the range of its potential behaviors is changed". According to Garvin *et al.* (2008), a useful conception of organizational learning must include change, such that an organization can be said to learn when its actions have been modified as a result of reflection on new knowledge or insight.

Although there has been a growing body of empirical studies on the relationship between organizational learning and firm performance, the results remain inconsistent and thus inconclusive (Goh *et al.*, 2012). And studies in the Chinese context remain limited as well. More problematic than the conceptual debate is the lack of empirical testing and validation of the relationship between organizational learning and performance, mostly because of the multi-dimensional nature of the learning construct. For example, most published studies have used only qualitative selected case studies and anecdotes from organizational experience as the basis for evidence that organizational learning works and has positive effects for innovation and performance (DeGeus, 1988; Senge, 1990a; Nevis *et al.*, 1995). For example, Gharaibeh (2011) investigated two major power transmission projects through an in-depth case study research and examined the dynamics of project learning and the learning process within project teams. Only more recently has some empirical research been carried out on

organizational learning. For example, Hult *et al.* (2003) have attempted to consider organizational learning as a strategic resource in supply management. Muehlfeld *et al.* (2012) investigated the effect of organizational learning on the acquisition process.

Goh *et al.* (2012) meta-analysis indicated that there was a significant positive relationship between learning capability and organizational performance. However, the strengths of this relationship might be partially explained by context (Goh *et al.*, 2012). So what remain unanswered in the literature are these questions:

- Q1. What are the dimensions of organizational learning?
- Q2. What is the relationship between each dimension of organizational learning and firm performance?

Responding to these research questions, this paper attempts to make three main contributions to the growing literature and empirical studies regarding the application of the organizational learning concept. First, we aim to improve the conceptual understanding of the multiple dimensions of organizational learning. Second, we aim to provide empirical support for the relationship between organizational learning dimensions and firm performance. Third, we aim to provide firm managers with practical implications, which may help build organizational learning abilities that enhance firm performance.

Theoretical framework and hypotheses

The effect of organizational learning on performance was first demonstrated by the learning curve model from an industrial organization's economics perspective. In some circumstances, firms with the greatest experience in manufacturing a product or service will have the lowest costs in an industry and, thus, will have a cost-based advantage (Barney, 2007). In fact, learning curve–cost advantage association is not restricted to manufacturing. Learning can be associated with many business functions, from purchasing raw materials through distribution and service. For example, Boston Consulting Group (BCG, 1970) estimated learning curves for over 20 industries and demonstrated how firms can take cost advantage by having more operating experience. Although the industrial organization economics (IO) perspective shows us how important the organizational learning is for a firm to gain a cost advantage, the model does not tell us the mechanism by which the experience leads to cost advantage and why some firms learn better than others.

However, in the strategic management literature, organizational learning was discussed from a perspective of firm resources or capabilities. The resource-based view (RBV) of the firm posits that organizations can gain sustained competitive advantage through amassing and using strategic resources and capabilities, which are valuable, rare, difficult to imitate and non-substitutable (Barney, 1991). And a firm's potential for competitive advantage also requires a firm be organized to exploit its resources and capabilities (Barney, 2007). On the one hand, organizational learning is believed to be able to help firms amass and use these kinds of resources and capabilities. For example, Karash (2002) identified the organizational learning concept as a resource-oriented approach that is based on the ability of the organization to turn standard resources that are available to all into competences that are unique and cannot be easily copied by competitors (Karash, 2002). On the other hand, recent literature suggests that organizational learning is an idiosyncratic and complex capability, which is difficult to

imitate, replicate and transfer and which constitutes a source of competitive advantage (Prahalad and Hamel, 1990; Grant, 1996; Simonin, 1997; Lei *et al.*, 1999).

Although organizational learning is widely accepted as an essential element to successfully compete in a global marketplace (Prahalad and Hamel, 1990), the components of organizational learning in the literature are still descriptive due to the multi-dimensional nature of the construct. So some authors, both from a strategic management perspective and from an organizational theory perspective, stress different characteristics of organizational learning, for example, open communications by Philips (2003), risk taking by Appelbaum and Reichart (1998) and Richardson (1995), support and recognition for learning by Bennett and O'Brien (1994), team learning by Anderson (1997) and Senge (1990a) and knowledge management by Loermans (2002) and Selen (2000). Argote (2011), however, conceived organizational learning as having three sub-processes: creating, retaining and transferring knowledge. Some empirical studies provide support for the relationship between organizational learning and firm performance (Day, 1994; Slater and Narver, 1995). Ellinger *et al.* (2002) suggests a positive association between learning organization practices and objective firm financial performance.

Due to the multi-dimensional nature of the concept of organizational learning, a number of measurement tools for assessing an organization's current status in relation to learning have been developed. For example, Yang *et al.* (2004) developed a multi-dimensional measure of the learning organization based on its inception and practice. Armstrong and Foley (2003) identified a number of learning mechanisms that facilitate the development and operation of organizational learning:

- the learning environment;
- identification of learning and developmental needs;
- meeting the learning and developmental needs; and
- applying learning in the workplace.

Moilanen (2001) developed an instrument for assessing organizational learning and reviewed eight existing diagnostic tools. Moilanen's instrument was based on a holistic concept of organizational learning being regarded as a structure of related elements at both the individual and organizational levels. Comparing other instruments to this tool indicated that the dimensions of the organizational learning questionnaire developed by Yang *et al.* (1998) were the most comprehensive.

Over the past two decades, research has revealed three broad factors that are essential for organizational learning and adaptability. The three factors or building blocks of organizational learning (Garvin *et al.*, 2008) are a supportive learning environment, concrete learning processes and practices and the leadership behavior that reinforces learning. A supportive learning environment gives organizations an opportunity reflecting in the action and encourages thoughtful review of the organization's processes. For example, Alegre and Chiva (2013) examined the entrepreneurial orientation (EO) performance literature by offering a wider picture that includes two intermediate steps:

- (1) organizational learning capability (OLC); and
- (2) innovation performance.

Organizational learning will not occur until organizations take a series of concrete steps and engage in widely distributed activities, such as generation, collection, interpretation and dissemination of information. In general, researchers (Kolb, 1984; Schon 1983) viewed organizational learning as an iterative process, in which action is taken, assessed by the actor and modified to produce desired outcomes. Similarly, Garvin (2000) asserted that a useful conception of organizational learning must include a process of change. Organizational learning is also strongly influenced by leadership behaviors in an organization. For example, Noruzy *et al.* (2013) found that transformational leadership directly influenced organizational learning and knowledge management. Although so many tools have been developed to measure organizational learning, we still have not reached a consensus on this issue yet. Therefore, we will examine different dimensions of organizational learning and their effects on firm performance. Table I displays studies in the literature that investigates the effects of organizational learning dimensions on firm performance.

Learning orientation

The first dimension of organizational learning is learning orientation, which helps to build up the supportive learning environment in the firm and, thus, will positively relate to higher firm performance. Learning orientation refers to organization-wide activity of creating and using knowledge to enhance competitive advantage. As shown in Figure 1, the three components of learning orientation are openness to new ideas, psychological safety and team orientation.

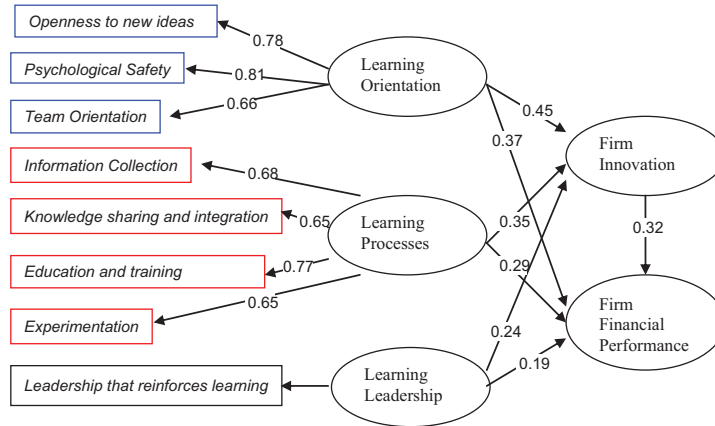
Openness to new ideas. Learning is not simply about correcting mistakes and solving problems. It is also about crafting novel approaches. Employees should be encouraged to take risks and explore the untested and unknown.

Psychological safety. The psychological safety is important to employees to learn (Garvin *et al.*, 2008). Only when employees feel psychologically safe can they disagree with peers or authority figures, ask naive questions, own up to mistakes or present a

Organizational learning dimension	Studies
<i>Learning orientation</i>	
Openness to new ideas	Damanpour (1991), Sinkula <i>et al.</i> (1997), Verona (1999), Akgun <i>et al.</i> (2007)
Psychological safety	Baer and Frese (2003), Garvin <i>et al.</i> (2008)
Team orientation	Garvin (1993), McGill <i>et al.</i> (1993), Hult <i>et al.</i> (2003)
<i>Learning process</i>	
Information collection	Day (1994), Slater and Narver (1995), Zahra and George (2002)
Knowledge sharing and integration	Huber (1991), Walsh and Ungson (1991), Simon (1991), Jerez-Go'meza <i>et al.</i> (2005)
Education and training	Bryan (2006), Hansson (2007)
Experimentation	Hedberg (1981), Pedler <i>et al.</i> (1989), Senge (1990b), Leonard-Barton (1992), Garvin (1993), Naman and Slevin (1993), Slocum <i>et al.</i> (1994), Goh (2001)
Learning leadership	Sagie and Koslowsky (2000), Antonacopoulou and Chiva (2007); Garvin <i>et al.</i> (2008)

Table I.
Studies on the
relationship between
organizational
learning and firm
performance

Figure 1.
A framework linking learning to firm innovation and performance



minority viewpoint. Baer and Frese (2003) stated that employees' psychological safety would affect both innovation and firm's performance.

Team orientation. Team orientation is defined as the degree to which the employees stress collaboration and cooperation in performing activities and making decisions. Teams allow for innovative problem-solving and for the development of synergy, whether to bring collective knowledge and skills to bear on problems or to develop new and innovative ideas. The literature again suggests that team-working, group problem-solving and self-managed teams typify organizational learning (Garvin, 1993). A teamwork environment also encourages the openness that is required for learning to occur. Practices such as the use of multi-functional and cross-functional work groups will promote openness to different points of view and a wider variety of ideas (McGill et al., 1992). Hult et al. (2003) found a positive relationship between team orientation and firms' supply management performance: innovativeness, cycle time and overall performance.

It is obvious that a learning orientation is closely related to organizational innovation; some studies provide evidence that learning orientation can enhance innovation capability (Damanpour, 1991; Verona, 1999). On the other hand, other studies show the importance of learning orientation to overall firm performance (Slater and Narver, 1995). A firm with a strong learning orientation is not simply a collector or storehouse of knowledge but a processor of it. Feedback from customers, channels and competitors must be used to develop core competence. A learning orientation influences the degree to which firms are likely to promote generative learning as a long-lasting core competency (Sinkula et al., 1997):

H1a. Learning orientation has a positive effect on firm innovation.

H1b. Learning orientation has a positive effect on firm's financial performance.

Learning process

The second dimension of organizational learning is the learning process. Organizational learning arises from a series of concrete steps and widely distributed activities, involving the generation, collection, interpretation and dissemination of information

(Garvin *et al.*, 2008). Kolb's (1973, 1979 and 1984) ideas concerning experiential learning and the learning cycle provide insights of how experiential learning can enhance firm innovation. Kolb and Fry (1975) presented their applied theory of experiential learning, which Kolb (1984) later elaborated upon and on which research has been carried out and expanded upon into the fields of business, management and with specific types of application made in organizational contexts (Garvin and Ramsier, 2003). Meanwhile, Fonseca (2002) describes innovation in this way as a new patterning of our experiences of being together, as new meaning emerges from ordinary, everyday conversations that take place in the working environment. Experiential learning arises from three learning process: information collection, information transfer and education and training.

Information collection. Firms that are able to learn about customers, competitors and regulators stand a better chance of detecting and acting upon events and trends in the marketplace (Day, 1994). Also, organizational learning is better versed in strategies for dealing with customers and competitors alike, which, in turn, should lead to superior profitability (Slater and Narver, 1995). According to Slater and Narver (1995), a firm that actively learns about its customers is in a position to offer more appropriate and finely targeted products, and this should result in a higher level of sales growth and higher levels of customer satisfaction, which should lead to superior profit/sales margin.

Knowledge sharing and integration. This refers to two closely linked simultaneously occurring processes: internal transfer and integration of knowledge (Jerez-Go'meza *et al.*, 2005). Knowledge transfer implies the internal spreading of knowledge acquired at an individual level through fluid communication, dialogue and debate. The knowledge integration, on the other hand, leads to the creation of a collective corpus of knowledge rooted in organizational culture, work processes and the remaining elements that form the "organizational memory" (Huber, 1991; Walsh and Ungson, 1991). Therefore, the transfer and integration of knowledge can guarantee an organization's constant learning in spite of the natural rotation of its members (Levitt and March, 1988; Simon, 1991).

Education and training. Firms with higher learning abilities also highly value education and training for both new employees and experienced employees. Both in business practice and in the literature, education and training is believed to be positively related to employees' and, thus, firm's performance (Bryan, 2006; Hansson, 2007).

Experimentation. However, it is also possible that experiential learning will result in the firm's connection to the past, which has been identified as one of the four organizing dilemmas for firms implementing innovative product differentiation strategies (Barney, 2007). If a firm remains wedded to its historically derived resources and capabilities, then even if those resources and capabilities are no longer valuable, its performance can fall significantly. Simply to say, the success of the past will turn to be the barriers for firm innovation and future success. However, in firms with higher learning abilities, learning is not simply about correcting mistakes and solving problems but also requires a climate of openness that welcomes the arrival of new ideas and points of view, both internal and external, allowing individual knowledge to be constantly renewed, widened and improved (Senge, 1990b; Leonard-Barton, 1992). Employees should be encouraged to take risks and explore the untested and unknown. To create a climate of openness, there needs to be a previous commitment to cultural and functional diversity, as well as a readiness to accept all types of opinions and experiences and to learn from them, avoiding the egocentric attitude of considering one's own values, beliefs and experiences

to be better than the rest (McGill and Slocum, 1993). This was illustrated by Hedberg (1981) to be unlearning. Hedberg suggested that before firms can learn from their experience, they must be prepared to unlearn. Unlearning requires a firm to modify or abandon traditional ways of engaging in and doing business. Unlearning can be difficult, especially if a firm has a long history of success using old patterns of behavior.

Experimentation, as an essential aspect for generative learning, implies the process of searching for innovative flexible solutions to current and future problems, based on the possible use of different methods and procedures (Leonard-Barton, 1992; Garvin, 1993). In an organization that encourages experimentation, employees can be more creative and learn from mistakes (Naman and Slevin, 1993; Slocum *et al.*, 1994). Organizational learning rewards and encourages the testing of new knowledge and individual initiative to try new methods of work or of problem-solving. Mistakes and failures as a result of experimentation are not punished but are used as lessons learned. There is widely shared consensus that experimentation is one of the most essential attributes of organizational learning (Pedler *et al.*, 1989). Goh found a positive relationship between experimentation and transfer of knowledge and the perceptual firm performance (Goh, 2001).

Thus, we hypothesize that:

H2a. The learning processes have a positive effect on firm innovation.

H2b. The learning processes have a positive effect on firm's financial performance.

Learning leadership

Organizational learning is strongly influenced by the behavior of leaders (Garvin *et al.*, 2008). When leaders actively question and listen to employees – and thereby prompt dialogue and debate – people in the institution feel encouraged to learn. If leaders signal the importance of spending time on problem identification, knowledge transfer and experimentation, then these activities are likely to flourish. When people in power demonstrate through their own behavior a willingness to entertain alternative points of view, employees feel emboldened to offer new ideas and options. Empirical studies have evidenced the importance of transformational leadership to organizational learning (Bass, 1985; Slater and Narver, 1995; Vera and Crossan, 2004). Characteristics of transformational leadership influenced individual learning and encouraged workplace interactions that support organizational learning (Vera and Crossan, 2004). Thus, we hypothesize that:

H3a. Leadership that reinforces learning has a positive effect on firm innovation.

H3b. Leadership that reinforces learning has a positive effect on firm's financial performance.

Figure 1 shows the proposed model linking organizational learning with firm innovation and performance.

Methods

Sample

The data for the study are random sample drawn from companies listed in Chinese Stock Market. A representative sample of 600 companies was sent the questionnaire. The sample covers a range of manufacturing and services industries, including financial

service, chemicals, machinery, electronic, instruments, computer and data processing, engineering and management services. One of the managers in top management team or equivalent is the target respondent, as it is believed that they are in a position to respond to all the statements.

To get a higher response rate, the survey was conducted in two waves. Three weeks after the first mailing of questionnaires and introductory letters, reminder letters and questionnaires were sent out to non-respondents. As a result, 287 usable questionnaires were received, for a response rate of 47.8 per cent.

Dependent variables

Firm performance. The firm performance is measured by two separate measurements:

- (1) perceptual innovation measures; and
- (2) objective performance measures.

No single measure is able to completely describe all aspects of a firm's condition. Frequently used variables include sales growth, employment growth, asset growth, profitability and return on assets (ROAs). Because each variable has strengths and weaknesses, it is important to evaluate several different measures of performance. Because all the sample companies are listed firms in the stock market, the database consisting of objective financial performance for the respondents' organizations in the study will be easy to create. Our research uses two measures to obtain a comprehensive overview of a firm performance:

- (1) three-year average ROA; and
- (2) perceptual innovation capability.

Although ROA, as a simple accounting measure, is a powerful tool for understanding a firm's performance, it also has limitations, such as managerial discretion, short-term bias and not able to evaluate intangible resources and capabilities (Barney, 2007).

The calculation of ROA:

$ROA = \text{Profits after taxes} / \text{Total assets}$.

$\text{Average ROA} = (\text{ROA for year 2009} + \text{ROA for year 2010} + \text{ROA for year 2011}) / 3$.

To measure the perceptual innovation capability, respondents were asked to assess the organization's current innovativeness compared to the previous years. It is a seven-item scale which is adopted from Calcantone *et al.* (2002). The scale was well validated by many studies (Alegre and Chiva, 2008). The scale measures the degree to which the firm implements suggestions, tries out new ideas, seeks out new ways to do things, how creative in its methods of operation, the speed to market with new products and services and the firm's attitude to innovation.

Independent variable

Dimensions of organizational learning. To measure the eight dimensions of organizational learning, we construct a 40-item questionnaire, which was developed based on the dimensions of the learning organization questionnaire (DLOQ) instrument of Watkins and Marsick (1993, 1996, 1997) and the Garvin *et al.* (2008) organizational learning survey. Among the eight organizational learning dimensions, team orientation was measured by a sub-scale from the DLOQ instrument and all other dimensions were measured by the Garvin *et al.* (2008) organizational learning survey. All scales were

scored on a seven-point Likert scale. The respondents were asked to assess the degree to which their organizations practice behaviors that are believed to be characteristics of organizational learning (1 being “strongly disagree” and 7 being “strongly agree”).

Research instrument

The research instrument was a four-page questionnaire designed to collect information about the main elements and practices that are perceived to contribute most to organizational learning and which affect organizations’ financial and operational performance. The research questionnaire is divided into three sections. Section 1 comprises company and personal data of the respondent: such as type of industry and company. Section 2 gathers information on the learning characteristics of the company. Section 3 aims to measure both financial and operational aspects of business performance. The instrument was translated into Chinese and back-translated into English by two independent bilinguals to ensure meaning equivalence across the two cultures. High-quality back-translations are important because close correspondence between the original source language version and the back-translated source language version is required before reliance can be placed on results based on translated scales (Hulin, 1987).

Data analysis

To test the proposed model in this study, which attempts to describe the extent to which identified organizational learning dimensions are associated with organizational performance, the structural equation model (SEM) was used to test the paths in the model. Before conducting path analysis with SEM, the validity of the measures was initially assessed by examining the reliability of the constructs and item-to-total correlation. Then, the confirmatory factor analysis (CFA) was conducted to determine if the instrument was measuring the dimensions that it was designed to measure and, therefore, empirically construct validate the organizational learning dimensions investigated by the study.

Results

Measure validation

At first, the validity of the measures was initially assessed by examining the reliability of the constructs and item-to-total correlation. Items with low item-to-total correlation were deleted. Next, the CFA was conducted to determine if the instrument was measuring the dimensions that it was designed to measure and, therefore, empirically construct validate the organizational learning dimensions investigated by the study. The purpose of CFA was to test the unidimensionality of the multi-item constructs and to eliminate unreliable items. Items that loaded on multiple constructs and had too low item-to-construct loadings were deleted.

To ensure discriminant validity, a series of CFA was conducted with covariance matrix as inputs. First, CFA was performed on the original model with eight constructs being distinct. This test produced $\chi^2 = 556.19$ and $df = 428$. A series of chi-square difference tests was then conducted to ensure discriminant validity. Factor loadings of items to corresponding constructs range from 0.67 to 0.95, and all loadings are significant ($p < 0.01$), which further supports convergent validity. The dimensionality is also supported by examining several measures of fit. The ratio of chi-square to degrees

of freedom is 1.3; the goodness-of-fit index (GFI) is 0.87; and Bentler's comparative fit index (CFI) is 0.97, all of which suggest that the model represents a good fit to the data.

Results of path analysis

Table I presents the correlation table. And Table II provides the results of path analysis.

Having satisfied the requirement arising from measurement issues, the structural model in Figure 1 was subsequently tested. The results are presented in Table III and indicate a good fit of the model: the ratio of chi-square to degrees of freedom is 1.56, GFI = 0.89, CFI = 0.98. All proposed paths are significant. The coefficient on the path from learning orientation to firm innovation is 0.45 ($t = 4.37, p < 0.01$). Thus, this positive relationship suggests that *H1a* is supported. The coefficient on the path from learning orientation to firm financial performance is 0.37 ($t = 3.25, p < 0.01$). Thus, this positive relationship suggests that *H1b* is supported. The path coefficient from learning processes to firm innovation is 0.35 ($t = 3.15, p < 0.01$), which supports *H2a*. The path coefficient from learning processes to firm financial performance is 0.29 ($t = 2.72, p < 0.01$), which supports *H2b*. The path coefficient from learning leadership to firm innovation is 0.24 ($t = 2.13, p < 0.01$), and so *H3a* is supported. The path coefficient from learning leadership to firm financial performance is 0.19 ($t = 1.87, p < 0.01$), and so *H3b* is supported. The structural model explains 38 and 32 per cent, respectively, of the variance in the two endogenous theoretical constructs, firm innovativeness and firm performance.

Discussion

Implications

Practical implications. An important implication for business can be established from this study. In spite of the general consensus in the literature with regard to the efficient management of constant learning and knowledge as powerful instruments for the

Variables	1	2	3	4	5	6
1. Three-year average ROA	1.00					
2. Innovation	0.45**	1.00				
3. Firm size	0.04	-0.08	1.00			
4. Learning orientation	0.21	0.40	0.06	1.00		
5. Learning processes	0.33	0.38	0.04	0.35	1.00	
6. Learning leadership	0.22	0.41	-0.11	0.38	0.34	1.00

Note: ** $p < 0.001$

Table II.
Pearson correlations

Paths	Standardized parameter estimate
Learning orientation to firm innovation	0.45 ($t = 4.37$)
Learning orientation to firm financial performance	0.37 ($t = 3.25$)
Learning processes to firm innovation	0.35 ($t = 3.15$)
Learning processes to firm financial performance	0.29 ($t = 2.72$)
Learning leadership to firm innovation	0.24 ($t = 2.13$)
Learning leadership to firm financial performance	0.19 ($t = 1.87$)

Table III.
Results of path
analysis

maintenance and improvement of a firm's competitiveness (Pettigrew and Whipp, 1993; Hamel and Prahalad, 1994), there is not such a wide consensus in terms of how managers can contribute toward a more efficient development of a superior learning capability. Establishing a measurement scale helps reveal the different areas of organizational learning in which managers can act to develop this capability. A relevant implication, therefore, is the approach taken in the activities and relations that need to be present for a firm characterized by organizational learning (Hult and Ferrell, 1997).

Moreover, the results showed that it is the combination of several learning characteristics and not the single dimension that influenced the variance of firm performance. The findings reinforce the notion that systemic interventions that address a variety and different combinations of organizational learning characteristics will be more likely to be successful than interventions that solely focus on singular or a limited number of dimensions. The findings help managers recognize particular sub-processes of organizational learning that need improvement and deploy targeted change strategies to address their organizations' specific learning needs (Flores *et al.*, 2012). For example, to be more innovative, the firms need not only enhance the culture of openness and experimentation but also enhance other learning activities. This implication is also consistent with findings from other studies (Ellinger *et al.*, 2002).

Theoretical implications. As stated earlier, there are very few empirical studies that address the fundamental relationship between organizational learning and firm performance. Development of a reliable and valid measure of organizational learning, as done in this study, can allow for further empirical study using larger samples by other researchers. The integration of objective measures of firms' financial performance with perceptual survey data represents a unique methodology that has not been widely used in the organizational learning literature. The positive correlations between the eight learning dimensions and the measures of firms' performance lend credence to the efficacy of the organizational learning concepts.

The other strength of this study is that the study is based on a large sample of organizations from various industries. The large sample size contributes to the generalization of this study. Especially, this study used a sample from an emerging market. Given that most of the organizational learning theories were developed in developed countries, the findings of the current study will contribute to our understanding of organizational learning and its effects in a broader context.

Another issue is the fact that two separate measurements, perceptual innovation measures and objective performance measures, were used to measure firm performance in the study. Clearly, firm performance is a multi-dimensional concept. Studies adopting one single measure of performance cannot capture the whole picture of how firms are performing. By using both objective and subjective measure of firm performance, we can have a deep understanding of the relationship between organizational learning and performance. Another reason that the current study chose both the objective and subjective performance measure is to avoid the common methods bias. Because the top managers' ratings were used to measure organizational learning, the use of objective performance measure will significantly reduce the common methods bias.

Future research directions

We face a number of limitations in the present study, which should be considered in interpreting the results. First, the sample includes only firms for which secondary data

are available. The reason that this study only chose public firms is to collect available financial data for the firms in the sample. The financial data for small and private firms will be highly inaccessible. Different results might have been obtained if we include smaller, private firms into the sample. This study only includes a limited number of measures of financial performance to assess the relationship between organization learning dimensions and firm performance. The inclusion of other measures of performance might have yielded different results. Additionally, we solicited the perceptions of a single key informant top manager from each firm for purpose of this research. Thus, we neither solicited nor included responses from middle managers and front-line employees in our study. It has been suggested that the perspectives of employees at different levels within the organization may vary (Schein, 1996). It is possible that a larger, more holistic sampling strategy within each firm might have yielded different results. These limitations, however, represent opportunities for future research.

The methodological issues raised here can be addressed with further research using much larger sample sizes and with longitudinal data. For example, longitudinal studies that examine the lagged effect of learning activities may further contribute to our understanding of how organizational learning can enhance firm performance. A future study could draw a sample from a single industry sector to control for between-industry or between-sector differences. Additional measures could be gathered instead of just perceptual data, such as the rate of innovation. This would add more strength to the argument that building a learning organization can lead to tangible outcomes for the organization. Further studies may also want to identify additional organizational learning attributes that can be linked to organizational performance.

Conclusion

The empirical support for the relationship between organizational learning and firm performance is not adequate in strategic management literature. The relative absence of such research does not encourage leaders, managers and employees to adopt learning activities. Accordingly, a compelling need to more firmly establish the linkage between the organizational learning concepts and firm performance exists. Our exploratory research suggests a positive association between organizational learning dimensions and firm performance (both objective financial performance and perceptual innovation measure). The findings of this study warrants that further empirical research are necessary to gain a deeper understanding of this complex relationship. The implication for managers is that the findings of this study provide a stronger business case for investing time and resources into developing organizational learning capability, and managers should assess these financial and non-financial performance measures to support their argument that learning capability can be linked to tangible results (Goh *et al.*, 2012). More specifically, this study indicated the importance of systemic interventions to improve organizational learning, that is organizations should address a variety and different combinations of organizational learning characteristics rather than interventions that solely focus on singular or a limited number of dimensions. Future research should further investigate our exploratory findings by integrating a wide variety of financial and non-financial indicators of firm performance with larger, more inclusive sampling strategies.

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