Front. Bus. Res. China 2010, 4(2): 231–261
DOI 10.1007/s11782-010-0011-5

RESEARCH ARTICLE

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The Current State and Future Directions of Research and Practice in Organizational Learning and Learning Organizations in China

Abstract This article aims to analyze systematically academic papers concerning organizational learning and learning organizations in the China Academic Journals Full-text Database (CAJ) published after 2000. A detailed review was conducted of their main findings, publication time, research methods, subjects (themes), and source of funding to depict the current state of research on organizational learning and learning organizations in China on three different levels, namely organizational, team and individual levels of learning. Based on the comprehensive review of literature, this article proposes future directions for organizational learning research and practice in China. Suggestions are offered to advance further research and practice in China.

Keywords organizational learning, learning organizations, team learning,

Translated from *Guanli Xuebao* 管理学报 (Chinese Journal of Management), 2009, 6(5): 569–579

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individual learning, research and practice

1 Introduction

Since the reform and opening up in 1978, China's economy has been growing rapidly. As a result of the steady progress in the reform and opening up, economic globalization and increasingly fierce market competition, Chinese enterprises are now facing a more complex and changeable environment. In order to establish and maintain competitiveness, it is essential for these enterprises to enhance the capability of organizational learning and self-renewal. Over the past few years, Chinese researchers and practitioners have become increasingly aware of the importance of organizational learning and learning organizations. Studies have also been conducted from different aspects to examine various issues in the field.

However, what is the current state of research and practice of organizational learning and learning organizations in China? What are promising directions of relevant research in the future? This article aims to find answers to these questions based on a comprehensive literature review and analysis.

2 Current State and Future Directions of Research

To gain a better understanding of the current state of research in organizational learning and learning organizations in China, this research first collected all relevant papers published after 2000 in the China Academic Journals Full-text Database (CAJ). Then, it categorized and analyzed these papers on the levels of organizational learning, team learning, and individual learning. By doing so, we hope to discover promising future research directions and promote studies on organizational learning and learning organizations in China.

2.1 Overview

2.1.1 Sample of Research Papers

Because organizational learning and learning organizations are a multifaceted issue, we will analyze relevant current research at the levels of organization, team, and individual, and explore the relationships among these levels.

With over 8 200 different Chinese journals in its collection, the CAJ is now the biggest full-text database of Chinese journal publications in the world, and is continuously updated. Easily distinguishable, data on journal papers are always complete and more reliable than from the conference proceedings. Two

sub-databases in the CAJ related to organizational learning, namely the Education & Social Science and Economics & Management, were chosen as the sources of our sample. We searched papers published in 2000–2008 with "organizational learning," "team learning," or "individual learning" as keywords in "core journals of CAJ" in the two sub-databases. A total of 186 papers were identified. After eliminating irrelevant ones and short ones (less than two pages in length), 147 "valid" papers were collected, including 121 on organizational learning, 17 on team learning, 5 on individual learning, and 4 on the interrelationship among the three levels of learning. Due to the time lag of the two databases, only two articles published in 2008 were collected. Therefore, the time series curve in Fig. 1 ends in 2007.

2.1.2 Distribution by Years

According to the yearly distribution of the sampled paper (as shown in Table 1 and Fig. 1), we divide the studies on organizational learning in China into the following phases:

(1) The initial phase (2000–2001). There were only 6 papers concerning organizational learning during year 2000 and 2001. It means that although the theory of organizational learning had been noticed by domestic researchers, it was not taken seriously.

(2) The development phase (2002–2004). Annually, there were 7–8 papers about organizational learning published in academic journals. In this phase, Chinese researchers also started to pay attention to team and individual learning. Organizational learning had attracted wide attention from a number of researchers.

(3) The rapid growth phase (2005–2007). The number of papers published grew rapidly in this phase. A growing number of domestic researchers have started to pay attention to organizational learning.

Table 1 Paper Distribution by Year

Research focus	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Organizational learning	2	4	7	8	8	17	25	50		121
Team learning			2	1	2	1	5	6		17
Individual learning				1		2			2	5
Correlations			1			1		2		4
Total	2	4	10	10	10	21	30	58	2	147

Note: Due to the time lag of the two databases, only 2 articles published in 2008 were collected.

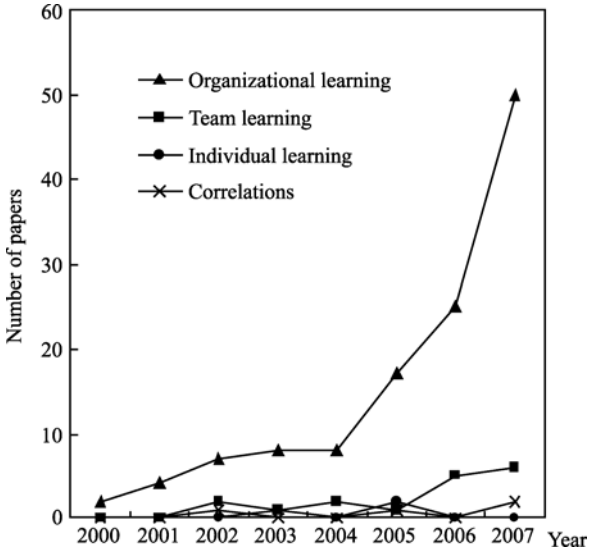


Fig. 1 Research on Organizational Learning and Learning Organizations during 2000–2007

2.1.3 Research Methods

Research methods adopted by the sampled papers can be roughly divided into 4 categories: (1) literature review, which presents analysis or comments of the extant research and theories of organizational learning home and abroad, (2) conceptual research, which mainly refers to theoretical approach used to deduct (but not to testify) viewpoints, develop models and research frameworks, etc., (3) quantitative research, which refers to the use of empirical methods to quantitatively analyze proposed models, (4) case study, in which specific enterprises are studied and research conclusions are drawn accordingly. These four categories are divided only for convenience and simplicity. Some papers might fall into more than one categorie. For example, some sampled papers adopted both conceptual and case study methods. Based on the above categorization, we can get a rough picture of study methods used in sampled papers at all levels. As shown in Table 2, 60% sampled paper adopted the conceptual method and 27% the quantitative method.

Table 2 Research Methods Adopted by the Sampled Papers

Research method adopted	Conceptual research	Quantitative research	Literature review	Case study
Total number of papers	91	42	13	8

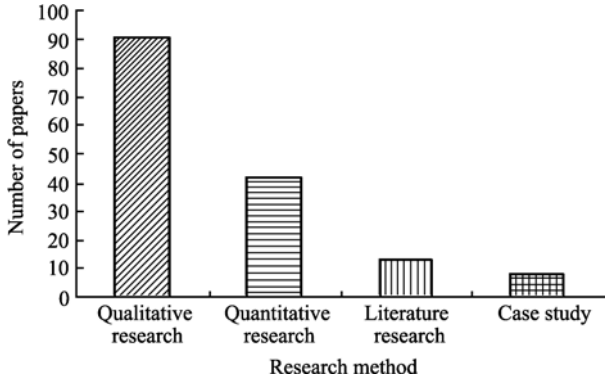


Fig. 2 Research Methods Adopted by the Sampled Papers

2.1.4 Research Subject

Similarly, sampled papers are divided into three categories in accordance with their research subjects (themes): (1) organizational learning itself, including its contents, mechanisms, methods, processes, obstacles, measurement, and relevant tools; (2) antecedents of organizational learning, which are to the factors affecting the process or the efficiency of organizational learning; (3) consequences of organizational learning, which are the impact of organizational learning on organizational performance, employee growth and other factors. Detailed analysis on research subject in the sample papers are shown in Table 3 and Fig. 3 as below.

Table 3 Analysis of the Research Subjects of Sampled Papers

Research subject	Organizational learning itself	Antecedents	Consequences
Number of papers	101	42	38

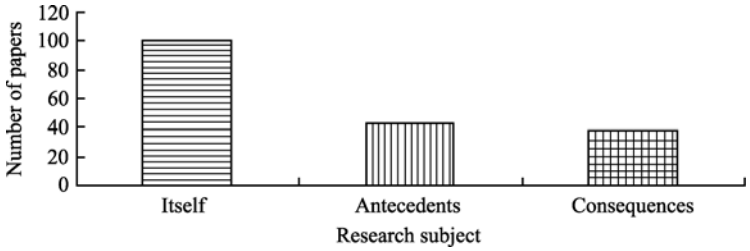


Fig. 3 Research Subjects of Sampled Papers

2.1.5 Regional Distribution of Authors

The regional distribution of the authors of sampled paper is shown in Table 4.

Table 4 Regional Distribution of Authors

Region	Number of papers	Percentage (%)	Region	Number of papers	Percentage (%)
Beijing	40	27	Chongqing	3	2
Tianjin	16	11	Liaoning	2	1
Shanghai	13	9	Heilongjiang	2	1
Shaanxi	13	8	Jiangxi	2	1
Guangdong	11	7	Fujian	1	1
Sichuan	11	7	Hebei	1	1
Jiangsu	9	6	Henan	1	1
Zhejiang	6	4	Ningxia	1	1
Anhui	5	3	Yunnan	1	1
Hubei	5	3	Shandong	1	1
Hunan	3	2			

2.1.6 Sources of Funding for the Sample Papers

Many sampled papers were sponsored by different programs or national foundations, such as the National Science Fund for Distinguished Young Scholars, the National Natural Science Foundation, the National Social Science Foundation, Humanities and Social Science Foundation of the Ministry of Education, and other foundations at university or regional levels. Specifically, out of the 147 papers, 83 papers (56.5%) were sponsored, in which 56 papers (38.1%) were supported by foundations at the national level. Especially, 43 papers (29.3%) were supported by the National Natural Science Foundation.

2.2 Research at Different Levels

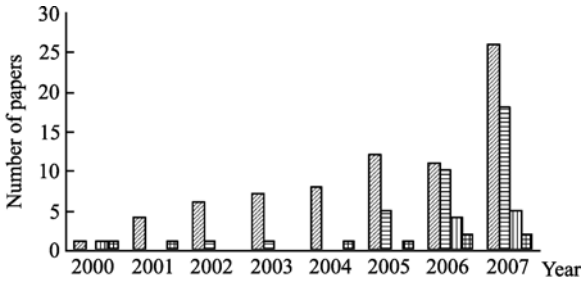
2.2.1 Research on Organizational-Level Learning

2.2.1.1 Research Methods and Subjects

As shown in Fig. 4, the number of conceptual research on organizational learning has increased since 2000, while quantitative research has not started increasing until 2005. As a symbol of research development in the field, there appeared several review of studies on organizational level learning during 2006–2007. By comparison, however, case study on organizational level learning has been lacking.

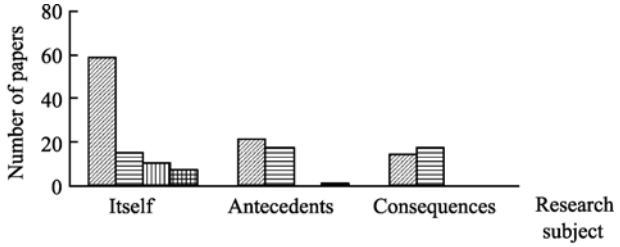
Further analysis of studies on organizational level learning in 2000–2007

reveals two distinctive features (as shown in Fig. 5): (1) Most of the studies focused on organizational learning itself, neglecting both the learning's antecedents and consequences; (2) conceptual research is most common in papers on organizational learning itself, while both conceptual and quantitative methods are applied in papers on the antecedents and consequences of organizational learning. A plausible explanation might be that studies on the antecedents and consequences of organizational learning might involve testing of causality relationship among different variables, making it more necessary to adopt quantitative methods. By comparison, there have been very few review and case study papers on organizational-level learning.



	2000	2001	2002	2003	2004	2005	2006	2007
Qualitative	1	4	6	7	8	12	11	26
Quantitative			1	1		5	10	18
Literature	1						4	5
Case	1	1			1	1	2	2

Fig. 4 Research Methods Adopted at the Organizational Level



	Itself	Antecedents	Consequences
Qualitative	58	21	14
Quantitative	15	17	17
Literature	10		
Case	7	1	

Fig. 5 Research Subject and Methods Adopted by the Organizational-Level Study

2.2.1.2 Main Findings at the Organizational Level

A number of organizational learning models at the organizational level have been

established. Some of them have been continuously improved and empirically tested by the standardized quantitative methods, while others are just conceptual models developed by means of conceptual or theoretical analysis. Table 5 summarizes the main organizational learning models at the organizational level established by Chinese researchers.

Table 5 Main Models on Organizational Learning

Research method	Author(s)	Main model(s)
Quantitative research	Chen and Ma, 2000; Chen and Zheng, 2005; Chen, 2006; Chen, 2007; Chen, 2008	These papers establish a holistic system model of learning organizations, which includes the learning organizations and learning capability system model (LO-LCS), and learning organizations and organizational system model (LO-OS). The two sub-models are interactive of each other LO-LCS is composed of the following nine capabilities: discovering, innovating, selecting, executing, transferring, reflecting, acquiring knowledge from environment, contributing knowledge to environment and building organizational memory. Learning organizations and organizational learning capability questionnaire (LO-OLCQ) is developed accordingly LO-OS is composed of five dimensions: (1) development and learning oriented leadership, (2) robust and excellent organizational vision and goal, (3) systematic learning practice and system, (4) common and harmony interest relationship; and (5) people oriented organizational culture. Learning organizations and organizational system questionnaire (LO-OSQ) is developed accordingly The first LO-LCS Model was established in 2000, and was improved during 2002 and 2005. The current LO-LCS Model consists of nine capabilities, namely discovering, innovating, selecting, executing, transferring, reflecting, acquiring knowledge from environment, contributing knowledge to environment and building of organizational memory
	Yu, Fang and Ling, 2004; Yu, Fang and Ling, 2004; Yu, Fang and Ling, 2006; Yu, Fang and Ling, 2007	The model of learning strategies evolution includes three stages: employee development, imminent business needs, and new business development The integrated organizational learning model contains four levels (namely individual, group, organizational and inter-organizational levels), four psychological and social interactions (namely acquirement and production, interpretation, integration, and institutionalization) and two information or knowledge processes (namely feedback and feed forward learning) The multi-dimensional organizational learning model includes six constructs, namely inter-organizational learning, organizational level learning, collective level learning, individual level learning, exploitation learning, and exploration learning

(*To be continued*)

(*Continued*)

Research method	Author(s)	Main model(s)
Conceptual research	Tang and He, 2005	The knowledge fermenting model: initial knowledge, maternal knowledge, knowledge enzyme, environment, knowledge and information tools, advanced knowledge, and knowledge fermenting bar
	Zhang and Yu, 2005	The multi-loop model of organizational learning based on individual learning: R1—individual learning cycle; R2—group or team learning cycle; R3—the bridge between R2 and R4; and R4—organizational learning cycle
	Zhang and Zhang, 2005	The two-dimension model of inter-organizational learning: knowledge transferring and experience accumulation
	Chu and Tang, 2006)	The quantum learning model: the first phase—the quantum turbulence storage; the second phase—the learning energy transition; the third phase—the high-energy state; and the fourth phase—the quantum decay phase

Researchers also studied the factors that affect organizational learning, including external environment, internal factors, human resources management, organizational culture, information technology and so on. Table 6 presents some of the main influencing factors of organizational learning.

Table 6 Antecedents and Consequences of Organizational Learning

Author(s)	Independent variable	Dependent variable	Main research results
Chen, 2001	Environment	Organizational learning	To illustrate the dynamic organization-environment relationship, the "tai-ji tu" (diagram of the supreme ultimate) has been adopted as an organizational learning tool to keep organization-environment relationship dynamically appropriate
Chen, 2004	Organizational structure	Organizational learning capability	Five functional characteristics (namely information/intelligence function, innovation function, learning/training function, knowledge management function, and change/crisis management function) and four form characteristics (namely team-based/ net-worked, flat, market/customer oriented, elastic/reconfigurable) which would affect the organizational learning capability have been put forward

(*To be continued*)

(*Continued*)

Author (s)	Independent variable	Dependent variable	Main research results
Wei, Zhong and Zhao, 2005	Information technology	Organizational memory, Degree of information sharing, Communication in organizational learning and operational efficiency of organizations	Information technology has a positive impact on organizational memory, degree of information sharing, communication in organizational learning, and operational efficiency of organizations
Yuan, Yao and Zheng, 2005	Knowledge inertia: group lost, individual lost, dispersion of organizational matters and retardation of results, fear of change, and cost-income dissonance	Organizational learning	The Knowledge inertia has impact on organizational learning
Chen and Zheng, 2005	Perceived environmental change and the extent of cooperative goal interdependence among employees	The facilitating factors for organizational learning	It is found that different levels of perceived environmental change and the extent of cooperative goal interdependence among employees within company will lead to significantly different degree of facilitating factors
Xie, 2005	Market orientation	Organizational learning	Market orientation has a positive impact on organizational learning
Peng, Xie and Chen, 2005	Environmental turbulence	Organizational learning	Environmental turbulence has a positive impact on organizational learning
Chen and Li, 2006	Ownership type, size, region and industry, employee quality and employee training of enterprises	Organizational learning capability	The ownership type of enterprises, size, region, industry, employee quality and employee training have significant impact on organizational learning capability
Hu and Pan, 2006	The degree of knowledge overlap	Knowledge transfer efficiency and learning capability	The degree of knowledge overlap has impact on knowledge transfer efficiency and learning capability
Xie, Wu, Wang and Ge, 2006	External factors, internal factors	Organizational learning	The factors affecting organizational learning include external factors (change of socio-economic value, social movements, transformation of social and economic system, marketing signals, imagination of technology vision and technological development) and internal factors (individual level, team level, organizational level)

(*To be continued*)

(*Continued*)

Author(s)	Independent variable	Dependent variable	Main research results
Lu, Yue and Liao, 2006	The contact rate between members, members' knowledge forgotten rate, number of members in co-operation and learning, and members' transfer rate	Tacit knowledge transfer	The contact rate between members, members' knowledge forgotten rate, number of members in co-operation and learning and members' transfer rate all have some impact on tacit knowledge transfer
Dai and Zhao, 2007	Cultural differences	Organizational learning processes, organizational learning climate, creation of learning opportunities, and establishment of a common vision	The authors studied the differences between Chinese and Dutch enterprises in terms of organizational learning processes, organizational learning climate, creation of learning opportunities, and establishment of a common vision
Zhou, 2007	The formation of family business, tenure of general manager	Inter-organizational learning behavior	The inter-organizational learning behavior of authoritarian-type family business is stronger than non-authoritarian type family business. With the increased popularity of the general manager, the inter-organizational learning behavior will first increase and then decrease
Chen, Li and Xie, 2007	The level of technological differences	Inter-organizational transparency level and absorptive capacity	The level of inter-organizational technological difference affects firms' transparency level and absorptive capacity, which in turn affect the efficiency of inter-organizational learning
Chen, 2007	Learning oriented human resource management	Organizational learning capability	The learning oriented human resource management has a positive impact on organizational learning capability
Yu, zheng, Fang and Ling, 2007	The facilitating factors of organizational learning within an organization: continuous development, organizational support, openness & cooperation, and respect multiplicity	Organizational learning	The facilitating factors could improve receiving knowledge from outside, formal spread of knowledge, transformational and collective learning. These would have significant implications for management practice and managing organizational learning
Liu and Gao, 2007	Inter-organizational trust	Technical learning	Inter-organizational trust promotes technical learning

Study on the organizational-level learning also involves the outcomes of organizational learning. The most accepted conclusions include:

First, organizational learning has a positive impact on organizational performance (Chen and Zheng, 2005; Xie, 2005; Chen et al., 2006; Liu and Gao, 2007; Yu, Fang and Ling, 2007; Liu, 2007; Li, 2007). In a survey on 2 035 Chinese companies, Chen (2006) found that learning capability has a significant and positive impact on the effectiveness of enterprise innovation, competitiveness in finance, operation, customer, and employee and integrated competitiveness. Among them, the impact on enterprise innovation effectiveness is most significant (R^2 = 0.513), followed by integrated competitiveness (R^2 = 0.429), and competitiveness in employee (R^2 = 0.354), operation (R^2 = 0.344), customer (R^2 = 0.309) and finance (R^2 =0.214). This shows that enterprises need to enhance their organizational learning capability in order to improve the effectiveness of organizational innovation and competitiveness (Chen and Li, 2006).

Second, organizational learning affects the core competence of an organization (Wu, 2003; Xie, Wu, Wang and Ge, 2006; Zhu, Wang and Lan, 2007). Yu, Fang and Ling (2007) studied the impact of organizational learning on employee satisfaction, affective commitment and intention of resign. Xie (2005) identified the mediating role that organizational learning plays between market orientation and organizational performance. Liu and Chen (2006) found that market orientation affects organizational learning and innovation which indirectly influences the organizational performance. Jiang and Zhao (2006) put forward a structural model in which organizational learning acts as a mediating variable between social capital as well as corporate entrepreneurship and organizational performance. Li, Ren and Wei (2006) found that some organizational learning methods have significant influences on management innovation performance.

2.2.2 Research on Team Level Learning

2.2.2.1 Methods and Subjects

There are only 17 sampled papers on organizational learning at the team level. As shown in Fig. 6, most of the papers focusing on the team learning itself adopted the conceptual research method, while most papers on the antecedents of team-level learning adopted the conceptual research method. Moreover, there is hardly any case study on organizational learning at the team level. These results show that team learning as a whole has not received enough attention from the academia.

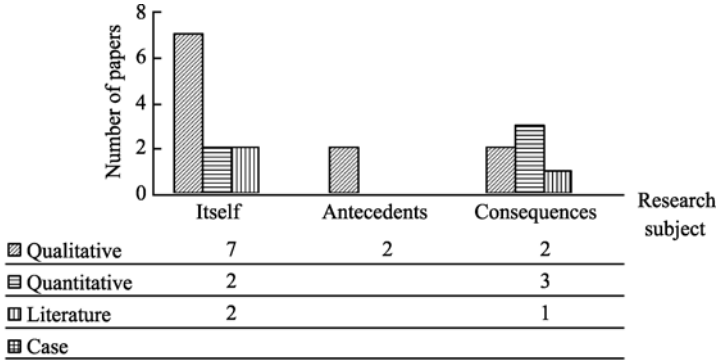


Fig. 6 Research Subject and Methods Adopted by the Team-Level Study

2.2.2.2 Main Findings

Table 7 presents the main models, viewpoints and conclusions on organizational

Table 7 Main Models of Team-Level Learning

Main subject	Author(s)	Main model, view and conclusion
Team learning capability (TLC) Model	Chen, 2007	The article defined the concepts of team learning and learning team and identified nine team learning behaviors and capabilities, including discovering, innovating, selecting, executing, transferring, Reflecting, acquiring knowledge from environment, contributing knowledge to environment and building organizational memory. Team learning capability questionnaire (TLCQ) was also established in the article
Construction of learning team	Liu, Zhang and Zhan, 2002	The learning model of product development team consists of: (1) knowledge management strategies and measures, (2) performance evaluation and incentive system, (3) flexible organizational strategy, (4) team stability, (5) systematic degree of product development, (6)competence of managers, and (7) the recognition of the organizational goals
	Liao, Hu and Jin, 2006	The pyramid model of virtual team learning consists of team members (personalized, multi-roles, co-leadership, motivation), extensive contact (multi-media, communication, trust), resource sharing (practice, the database), and shared vision (goals)
	Hao and Luo, 2003; Feng and Luo, 2005; Luo, 2006	The concept of virtual learning team was defined. The construction of virtual learning teams is composed of the following steps: (1) the authority of the core is the key, (2) adjustment and synergy is guarantee, (3) the spread of knowledge is an important means to expand learning region, and (4) dynamic update is an effective measure to improve the overall level of virtual learning team. The human resources of virtual learning teams can be divided into core employees, temporary employees and partners. The systematic structure solution to partner selection is also put forward

learning at the team level. By comparison, the number of papers on the antecedents and consequences of team-level learning is relatively small (see Table 8).

Table 8 Main Findings of the Antecedents and Consequences of the Team-Level Learning

	Author(s)	Independent variable	Dependent variable	Main findings
Antecedents	Tang and Zhu, 2006	The structural factors, technical factors, and peripheral factors of virtual team	Effectiveness of team learning (learning task, team health)	Structural, technical, and peripheral factors will affect the virtual team's process and mode of learning, the latter in turn has a direct impact on the effectiveness of learning. The relationships among virtual team members and social cognitive factors will play a mediating role between learning process and learning effectiveness
	Tang and Wang, 2007	Social cognitive factors such as self-efficacy (general self-efficacy, virtual self-efficacy) and goal orientation (learning orientation, performance orientation, avoidance orientation)	Effectiveness of virtual team leaning (skill improvement, team task and team well-being)	The results reveal that virtual team efficacy and goal orientation have a positive effect on learning effectiveness, and attitude towards virtual team learning and team trust have a meditative or direct effect on the effectiveness of virtual team learning
	Zhao, Chen and Fu, 2008	Factors promoting learning motivation (perceived usefulness, conscientiousness); Factors reducing learning resistance (psychological safety and agreeableness)	Team learning capability	The two psychological factors would influence team members' decision concerning participation in team learning (whether to participate or the degree of participation) and affect team learning capability as a whole
Consequences	Xiao, 2004	The three-dimensional feature structure of learning team: team learning, team role and team empowerment	Team effectiveness	The three-dimensional feature structure of learning team has a positive impact on the effectiveness of a learning team
	Lu and Shi, 2004	Interpersonal factors: the degree that team members involved in learning behavior, psychological safety, authority structure of the leader	Team learning behavior and teamwork effectiveness	Team members' view of interpersonal relationship and the authority structure of team leader will affect team learning behavior and teamwork effectiveness

(*To be continued*)

(*Continued*)

	Author(s)	Independent variable	Dependent variable	Main findings
Consequences	Chen, 2007	Team learning capability	Team performance	Team learning capability is positively correlated to the team performance
	Shi, Cheng & Li, 2007	Learning capability, learning platform, learning utility and learning atmosphere	Diffusion of team knowledge	The enrich of learning capability, improvement of learning platform, overcome of learning obstacles and cultivation of learning atmosphere can facilitate the diffusion of team knowledge

2.2.3 Current Research of Individual-level Learning

2.2.3.1 Research Method and Subject

Five sampled papers focus on organizational learning at the individual level. Three out of five belong to the conceptual research and the other two are conceptual research. As the number of research on the individual-level organizational leaning is still relatively small (research on individual learning in the filed of education and psychology are not discussed in this paper), there are hardly literature review or case study concerning individual-level learning. More detailed analysis concerning research on individual level learning is presented in Fig. 7.

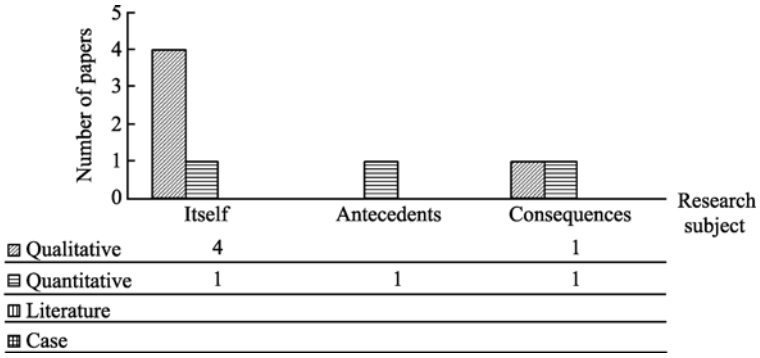


Fig. 7 Research Subject and Methods Adopted by Paper concerning Organizational-Level Learning

2.2.3.2 Main Findings on Individual Level

Table 9 presents major findings of organizational learning at the individual level

conducted by domestic researchers.

Table 9 Main Findings at the Individual Level

Subjects	Author(s)	Main Views and Findings
Individual learning itself	Chen, 2003	The article establishes the knowledge source model consisting of four methods, namely experiencing, communicating, reading and reflecting. The specific steps and key points for using each kind of method are developed to improve both the effectiveness and efficiency and knowledge acquisition and transferring. Based on the model, process for managing both the knowledge acquisition and transferring was developed
	Chen, 2008	The research on individual learning is briefly reviewed. The concept of individual learning is put forward. The definitions of nine behaviors and nine capabilities for individual learning are established. The individual learning capability questionnaire (ILCQ) with good reliability and validity is also developed
Antecedents	Yuan, Yao and Zheng, 2005	The knowledge inertia would affect individual's learning of new knowledge. The influencing factors of knowledge inertia are (1) recognition of existing knowledge, (2) willing to accept the "new things", (3) the amount of "outline" exists in memory, (4) the possibility and cost of verifying new knowledge. Some resolutions to deal with knowledge inertia have been put forward, and the pertinacity and reiteration of knowledge inertia are also pointed out
Consequences	Chen, 2008	The article discovers a significant positive correlation among individual learning capability, individual task and contextual performance

2.3 Future Directions

Although Chinese researchers have made achievements in studying organizational learning and learning organizations, many problems remain to be solved. Below, the authors put forward some advice on the future direction of organizational learning research.

2.3.1 Research Subjects

Research on organizational, team and individual learning should be strengthened, particularly learning at the team and individual level. Specifically, more attention should be paid to the research on organizational learning at the organizational level from the following aspects: the mechanism and approaches by which an organization learns from experience, mechanism and approaches of crisis-oriented learning, organizational learning-oriented knowledge management

system, the complex relationship between organizational learning and its antecedents (e.g., internal features and characteristics of the external environment) and consequences (such as a variety of organizational performance and members' satisfaction). At the team level, we should systematically explore the factors which have impacts on team learning (such as the diversities of team goal, knowledge, experience and personality diversity, interaction among team members, the style of team leadership, the team's internal management and external border management), as well as the impacts of team learning itself (such as team performance and team members' satisfaction). At the individual level, more efforts should be spent on exploring the inherent mechanism and rules of individual learning (including both managers and employees) under a business environment, the relationship among individual learning, its antecedents (e.g., personality, values, EQ, attitude, experience, team atmosphere) and consequences (such as individual performance, satisfaction and development potential), and the specific methods to improve individual learning. Moreover, we also need to systematically explore the interaction among these three levels of learning. For example, enterprise leaders need to be more aware of how to effectively improve their own learning capability and adaptability from different sources and transfer these individual-level capabilities into learning capabilities at the team or organizational levels so that they can enhance the learning capabilities of the entire team or organization. At the same time, we also need to explore how to use the overall learning atmosphere and resources to effectively influence each team and individual in an organization to improve the learning efficiency of all members and their learning performance.

2.3.2 Research Methods

Each research method has its own strengths and weaknesses. A combination of different research methods might help gain a better understanding of the learning mechanism and the inter-relationship among different learning-related variables. By comparison, case study method is suitable for collecting first-hand data and gaining a deeper understanding of the focused issue and its relationships with the other factors. The experimental approach is more suitable for simplification, precise control of the problem under study as well as identification of the main laws underlying the problem under study. The combination of questionnaire survey and statistical analysis can be used to grasp a more complete picture and identify a universal law. It is also a suitable method for comparisons among different types of research subjects. In the course of statistical analysis, the hierarchical linear model (HLM) is often used for inter-level research.

2.3.3 Research Goal and Orientation

In addition to continuously exploring organizational learning from theoretic

perspectives, we need to strengthen practice-oriented research in the field. For example, what specific measures, effective tools and methods should be taken to enhance organizational, team and individual learning capability? What are the specific steps taken to develop learning team and learning organizations? What specific measures should be taken to promote the real effects of organizational, team and individual learning on organizational, team and individual performance? Only by strengthening the practice-oriented research, could we make the concept and knowledge of organizational learning and learning organizations more generally accepted by people and exert more positive impact on the national economic and social development.

3 Current State and Directions of Practice

Since the concepts of organizational learning and learning organizations were introduced into China in the 1990s, a lot of Chinese enterprises have conducted activities to promote organizational learning and have achieved certain progress. To keep abreast of the latest progress in organizational learning in Chinese enterprises, gain a better understanding of the problems concerning organizational learning facing Chinese enterprises, and find out the impact of organizational learning on enterprise innovation performance and competitiveness, the Chinese Entrepreneurs Survey System (CESS) of the State Council Development Research Center used Chen's organizational learning capability model, evaluation questionnaires (OLCQ) and calculation methods to carry out a large-scale survey in 10 000 randomly-selected Chinese enterprises. 3 583 questionnaires were returned, including 3 511 valid ones (valid reply rate = 35.1%). Among which, 2 305 were used in the final analysis. Based on these survey data, status quo, problems of Enterprise learning and their impacts on enterprise innovation and Competitiveness were discussed by Chen and Li (2006). Below, we summarize in brief the current state as follows:

(1) Enterprise managers are now more aware of "organizational learning" and "learning organizations". Most of the interviewed managers are now more aware of the two concepts. For example, data showed that 22.6% of the interviewed managers said they were very familiar with the two concepts, 59.8% quite familiar, 17% were not very familiar, and only 0.6% said they had never heard of the two concepts. However, the two authors' survey also revealed that some managers were not clear about the connotations of the two concepts. Therefore, more efforts should be spent on helping practitioners gain a more accurate understanding of the two concepts in the future.

(2) Chinese enterprises' organizational learning capability as a whole is at the mid to upper level, but some capabilities (especially the capability of building organizational memory) need to be further improved. We should also promote the sharing and co-developing of learning experience among different types of

enterprises. According to the Organizational Learning Capability Model, learning capability can be divided into nine "sub-capabilities," namely "discovering, innovating, selecting, executing, transferring, reflecting, acquiring knowledge from environment, contributing knowledge to environment, and building organizational memory." We use the weighted average of these nine sub-capabilities to produce the "integrated organizational learning capability." The degree of organizational learning is divided into 7 levels, ranging from level 1 (very weak) to level 7 (very strong). The higher the level, the stronger an enterprise's learning capability. According to the self-evaluation among top managers, the average level of the integrated organizational learning capability of Chinese enterprise is 5.15. Specifically, the executing capability is 5.34, reflecting capability 5.33, transferring capability 5.30, selecting capability 5.29, innovating capability 5.19, discovering capability 5.18, capability to acquire knowledge from environment 5.15, building organizational memory 4.71, and contributing knowledge to environment 4.47. These data show that Chinese enterprises should emphasize on building a mutual-sharing organizational memory, as shown in Table 10.

In addition, there is a significant difference between varied types of enterprises in organizational learning: 1) There are significant differences in integrated organizational learning capability, discovering capability, innovating capability, selecting capability and the capability to acquire knowledge from environment among different types of enterprises. For example, non-state-owned enterprises are usually better than state-owned enterprises in these learning-related capabilities. 2) Enterprises of different size have significant differences in the nine learning-related sub-capabilities. Generally speaking, the bigger the size of an enterprise, the stronger the organizational learning capability. 3) Enterprises in different regions have significant differences in terms of transferring capability, capability to acquire knowledge and building organizational memory. Data show that enterprises in the eastern and central regions demonstrate stronger learning capabilities than enterprises in western regions. 4) Enterprises in different industries have different capabilities in acquiring and transferring knowledge. Particularly, enterprises from the real estate industry have the strongest capability to acquire knowledge and transmit information, while enterprises in the computer services and software industry are good at contributing knowledge to surrounding environment. These results indicate that different learning capability gaps do exist between different types of enterprises. We therefore need to enhance the sharing of learning experience among different types of enterprises.

(3) Enterprises have many ways to acquire knowledge from external environment and share knowledge in internal environment. We need to enhance the efficiency of knowledge acquisition and sharing in the future.

As shown in Table 11, enterprises have many ways to acquire knowledge from

Table 10 Current State of Organizational Learning Capability in Chinese Enterprises

	Discovering	Innovating	Selecting	Executing	Transferring	Reflecting	Acquiring knowledge from environment	Contributing knowledge to environment	Building organizational memory	Integrated learning capability
Overall	5.18	5.19	5.29	5.34	5.30	5.33	5.15	4.47	4.71	5.15
Enterprises in eastern region	5.19	5.19	5.30	5.34	5.30	5.33	5.13	4.44	4.72	5.15
Enterprises in middle region	5.19	5.22	5.31	5.38	5.36	5.36	5.23	4.55	4.76	5.19
Enterprises in western region	5.11	5.19	5.24	5.33	5.23	5.31	5.11	4.46	4.57	5.10
P Values	0.253	0.767	0.409	0.613	0.049*	0.669	0.050*	0.136	0.021*	0.184
Large enterprises	5.46	5.43	5.54	5.58	5.52	5.52	5.36	5.02	5.13	5.42
Medium-sized enterprises	5.22	5.22	5.32	5.35	5.34	5.36	5.17	4.49	4.75	5.18
Small enterprises	5.00	5.07	5.15	5.23	5.16	5.21	5.04	4.20	4.47	5.00
P Values	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*
State-owned enterprises	5.09	5.05	5.17	5.26	5.28	5.23	4.99	4.49	4.63	5.06
Private enterprises	5.15	5.14	5.24	5.26	5.22	5.33	5.10	4.44	4.71	5.11
Joint-stock enterprises	5.19	5.23	5.32	5.36	5.31	5.35	5.20	4.47	4.70	5.17

(*To be continued*)

(*Continued*)

	Discovering	Innovating	Selecting	Executing	Transferring	Reflecting	Acquiring knowledge from environment	Contributing knowledge to environment	Building organizational memory	Integrated learning capability
Foreign-funded enterprises	5.30	5.24	5.32	5.36	5.29	5.26	5.12	4.36	4.84	5.17
P Value	0.058*	0.002*	0.014*	0.111	0.437	0.086	0.000*	0.640	0.246	0.041*
Agriculture, forestry, animal husbandry and fishery	5.09	5.07	5.16	5.09	5.32	5.38	5.00	4.47	4.57	5.06
Extractive industries	5.15	5.20	5.39	5.49	5.29	5.43	5.27	4.78	4.62	5.22
Manufacturing	5.17	5.17	5.28	5.33	5.28	5.31	5.16	4.43	4.70	5.13
Electricity, gas and water Production and supply industry	5.18	5.14	5.28	5.32	5.39	5.36	5.11	4.62	4.73	5.16
Construction	5.18	5.19	5.33	5.30	5.31	5.29	4.90	4.48	4.67	5.11
Transportation, warehousing and Postal	5.06	5.10	5.15	5.29	5.30	5.23	5.04	4.53	4.71	5.08
Information transmission, computer services and software industry	5.52	5.48	5.63	5.46	5.39	5.39	5.19	4.90	5.21	5.38

(*To be continued*)

(*Continued*)

	Discovering	Innovating	Selecting	Executing	Transferring	Reflecting	Acquiring knowledge from environment	Contributing knowledge to environment	Building organizational memory	Integrated learning capability
Wholesale and retail trades	5.22	5.23	5.30	5.39	5.33	5.39	5.11	4.40	4.62	5.16
Accommodation and catering industry	5.18	5.42	5.46	5.60	5.54	5.59	5.32	4.69	5.12	5.36
Real Estate	5.24	5.35	5.36	5.39	5.40	5.44	5.46	4.60	4.78	5.26
Rental and business services	5.34	5.45	5.50	5.58	5.36	5.41	5.37	4.45	4.67	5.29
P value	0.626	0.308	0.527	0.255	0.888	0.841	0.014*	0.051*	0.251	0.418

Note: Adopted from Chen, Li and Hao (2006). * indicates significant at 0.1 level.

Table 11 Ways to Acquire Knowledge from both External and Internal Sources

Part A

Ways to acquire knowledge from external sources	Overall	Region			Scale			Ownership			
		The eastern region	The middle region	The Western region	Large	Middle	Small	State-owned	Private	Joint-stock	Foreign capital
Collecting external information	69.1	67.9	70.9	71.1	69.7	67.7	70.7	71.9	65.2	68.7	69.8
Sending employee to participate in training courses	63.1	62.3	63.2	65.9	68.6	66.8	55.8	76.5	46.3	61.7	63.1
Participating in relevant conferences and exhibitions	62.3	62.6	61.8	61.9	54.4	62.6	65.4	64.9	62.7	61.4	67.8
Visiting other enterprises	58.4	56.8	60.5	60.9	65.3	61.7	51.0	66.7	55.7	56.3	53.7
Inviting external experts to give lectures	45.3	45.5	46.1	43.6	66.9	48.9	31.3	51.1	32.3	45.4	49.0
Reading books and watching videos	43.0	41.4	44.2	47.5	32.8	43.0	47.5	44.4	35.8	44.3	36.2
Building cooperation alliances	22.9	23.1	22.0	23.6	22.2	22.9	23.2	22.2	20.4	23.1	23.5
Employing external consultants	21.6	20.9	24.6	19.9	17.8	22.1	22.6	11.1	28.4	23.5	21.5
Poaching talents from other enterprises	21.0	22.0	19.9	18.6	14.7	20.3	24.5	10.6	27.4	22.6	24.8

(*To be continued*)

(*Continued*)

Ways to acquire knowledge from external sources	Overall	Region			Scale			Ownership			
		The eastern region	The middle region	The Western region	Large	Middle	Small	State-owned	Private	Joint-stock	Foreign capital
Employing consultant companies	13.1	14.5	10.2	12.1	20.3	13.5	9.5	12.8	10.9	13.6	13.4
Conducting merger and acquisition	3.5	2.9	3.4	5.8	3.1	3.7	3.3	2.0	7.5	3.4	3.4
Others	1.6	1.7	0.9	2.4	0.6	1.4	2.4	1.0	4.5	1.4	1.3

Part B

Sharing knowledge within the boundary of one's enterprise	Overall	Region			Scale			Economic type			
		The eastern region	The middle region	The western region	Large	Middle	Small	State-owned	Private	Joint-stock	Foreign capital
Passing knowledge down to employees from managers	75.8	75.1	73.9	81.1	61.4	77.4	79.9	72.3	76.6	76.5	76.5
Establishing knowledge-sharing procedure and mechanism	55.8	55.5	54.3	58.8	51.9	56.2	56.9	53.6	53.2	55.9	61.1
Holding formal experience-sharing meetings.	48.1	46.0	53.4	48.3	59.4	48.1	43.2	61.0	36.3	46.7	36.2

(*To be continued*)

(*Continued*)

Sharing knowledge within the boundary of one's enterprise	Overall	Region			Scale			Economic type			
		The eastern region	The middle region	The western region	Large	Middle	Small	State-owned	Private	Joint-stock	Foreign capital
Encouraging informal experience exchanges among employees	35.1	34.6	32.9	39.9	20.8	32.3	44.8	34.8	46.8	34.7	28.2
Inviting experienced employees to give courses to employees	27.0	28.0	28.4	21.3	27.5	29.4	23.6	18.8	28.4	27.8	38.3
In-house readers	17.7	18.1	18.2	15.7	36.1	19.1	8.1	23.7	12.4	17.2	12.1
Intranet	11.2	11.9	10.9	9.4	22.8	10.7	7.0	14.8	7.5	10.3	18.1
Others	1.1	1.2	0.6	1.3	0.8	1.2	1.1	0.7	1.0	1.2	1.3

Note: Adopted from Chen, Li and Hao (2006).

external environment. Some of the main knowledge acquisition approaches adopted by Chinese enterprises include collecting external information (69.1%), sending employee to participate in training courses (63.1%) and attending relevant conferences and exhibitions (62.3%), etc.

Likewise, Chinese enterprises also have many ways to share knowledge within the boundary of enterprises. As shown in Table 11, many traditional knowledge-sharing methods (such as managers pass knowledge down to employees and experience sharing among employees) are still widely used in enterprises. Modern methods such as intranet exchange and internal publications need to be more widely applied in the future.

(4) Chinese enterprises need to increase their input in employee training, particularly in terms of adopting modern training approaches and perfecting mechanism of training performance evaluation.

The report reveals that the ratio of an enterprise's employee training expenditure to its annual sales revenue is positively related to its learning capability. Among the sampled enterprises, the average ratio in 2004 was 1.7%: 43.7% of sampled enterprises had a ratio smaller than 0.5%, 38.9% between 0.5 and 2%, 12.9% between 2 and 5%, and 4.6% above 5%. These data show that most of the Chinese enterprises still need to invest more in employee training.

As above, the level of employee training management in Chinese enterprises as a whole is quite satisfactory (5.11). Specifically, employee training has been widely emphasized among Chinese enterprise (5.67). Most of the employee training programs are established to meet the practical demands of employees (5.56). Employee training emphasizes both practical skills (5.18) and business ethics (5.35). However, Chinese enterprises still need to spend greater effort on combining employee training performance with individual promotion (4.79), as well as on applying of modern E-learning technology to training (4.11).

4 Conclusion

4.1 Future Directions

In the future, Chinese researchers need to further explore the inherent mechanism, antecedents, and consequences of organizational learning as well as the interrelationship between organizational learning itself and its antecedents and consequences. Equal emphasis should also be put on the interrelationship and mutual-transferability of organizational learning at the organizational, team and individual levels. As for research methods, a combination of case study, experiment and questionnaire methods are believed to be better able to gain a deeper understanding of the questions under study. Of course, Chinese researchers also need to pay more attention to the practical implication of

organizational learning theories in Chinese enterprises to make the concepts of organizational learning and learning organizations more acceptable among Chinese enterprises. Likewise, Chinese researchers shall also strengthen their exchange and cooperation with western researchers to further promote the development of organizational learning in China.

4.2 Practical Implications

Over the past few years, Chinese enterprises have made tremendous progress in promoting organizational learning. Chinese managers are now more aware of the theories and practice of organizational learning and learning organizations. However, certain sub-capabilities (such as the building of organizational memory) of organizational learning need to be further improved. In addition, Chinese enterprises are supposed to adopt more advanced and effective means to promote the efficiency of knowledge acquisition from the external environment and experience sharing within organizations. Likewise, many enterprises also need to establish modern training and training performance evaluation mechanism to facilitate organizational learning and promote the establishment of learning organizations. We propose five suggestions on promoting organizational learning and establishing learning organizations in China: 1) Awareness. Chinese enterprises should be more aware of the changes in business environment both at home and abroad and maintain the foresightedness and strategic nature of their organizational learning activities; 2) Pragmatism. To give up any empty slogans and formalities and promote organizational learning in a down-to-earth way; 3) Holistic approaches. Chinese enterprises should promote organizational learning from all three levels and facilitate the complementariness of the three-level learning; 4) Continuous processes. Chinese enterprises need to systematize and routinize all kinds of organizational learning activities and help employees form learning habits. None of these can be achieved overnight; 5) Emphasis on communication. Chinese enterprises should pay more attention to communicating with peer enterprises home and abroad in order to learn from one another and to promote organizational learning in China.

4.3 Intergration between Research and Practice

In addition, researchers and practitioners should also cooperate closely to achieve a win-win situation. By doing so, enterprises can constantly enhance and facilitate their learning capabilities, while the academia can further promote the development of research on organizational learning. For example, in May 23 and 24, 2008, the “China’s First Conference on Organizational Learning and Learning organizations Research and Practice” was successfully held in Beijing,

attracted over a hundred attendants from both the academic and business world. Having greatly promoted the development of both organizational learning research and practice in China, the conference has demonstrated that a sound cooperation between practitioners and researchers is able to greatly promote both research and practice of organizational learning and learning organizations in China.

Acknowledgements This work is supported by the National Science Fund for Distinguished Young Scholars (No. 70625003), the National Natural Science Foundation (No. 70972024, 70890081, 70572005, 70272007, 70321001), the Humanities and Social Science Foundation of the Ministry of Education(No. 06JJD630013), and Doctoral Fund of Ministry of Education of China (No. 20090002110037). The authors would also like to give thanks to Qian Li for her help and contribution to this paper.

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