

转型经济中的企业管理与变革

Enterprise Management and Change in a Transitional Economy

主 编 赵曙明

Chief Editor: Shuming ZHAO

副主编 乔伊·格拉斯曼 刘 洪

Co-Editors: Joel GLASSMAN

Hong LIU

● 南京大学出版社



转型经济中的企业管理与变革

Enterprise Management and Change in a Transitional Economy

主 编 赵曙明

Chief Editor: Shuming ZHAO

副主编 乔伊·格拉斯曼 刘 洪

Co-Editors: Joel GLASSMAN

Hong LIU

图书在版编目(CIP)数据

转型经济中的企业管理与变革=Enterprise Management and Change in a Transitional Economy:英文/赵曙明主编. 一南京:南京大学出版社,2008.5
ISBN 978-7-305-05435-8

I. 转… Ⅱ. 赵… Ⅲ. 企业管理—国际学术会议— 文集—英文 Ⅳ. F270—53

中国版本书馆 CIP 数据核字(2008)第 070650 号

出 版 者 南京大学出版社

社 址 南京市汉口路 22号 邮 编 210093

网 址 http://press. nju. edu. cn

出版人左健

Enterprise Management and Change in a Transitional Economy

书 名 转型经济中的企业管理与变革

主 编 赵曙明(Shuming ZHAO)

副 主 编 乔伊·格拉斯曼(Joel GLASSMAN), 刘洪(Hong LIU)

责任编辑 耿飞燕

编辑热线 025-83594087

照 排 南京南琳图文制作有限公司

印 刷 南京爱德印刷有限公司

开 本 880×1230 1/16 印张 45.5 字数 149 千

版 次 2008年5月第1版 2008年5月第1次印刷

ISBN 7-305-05438-8

定 价 138.00元

发行热线 025-83594756

电子邮件 sales@press. nju. edu. cn(销售部) nupress1@public1, ptt. js. cn

^{*}版权所有,侵权必究

^{*} 凡购买南大版图书,如有印装质量问题,请与所购 图书销售部门联系调换

Preface

The world economy has become increasingly globalized, and this new reality in turn, has had a significant impact on economies all over the world, especially on management perspectives in the traditional industrial economies. To gain a competitive advantage, companies are reassessing traditional management theories and practices. In China, following entry into WTO and further steps in the transition to a market economy, more and more enterprises are engaging in international business and taking an active part in global competition. In these circumstances it is particularly important to examine multinational enterprise management theories and practices and explore how Chinese enterprises can improve management skills through management reform and innovation in order to realize the transition from "Made in China" to "Created in China."

The Sixth International Symposium on Multinational Business Management: Enterprise Management in a Transitional Economy is convened in this dynamic environment. The Symposium is held at Nanjing University on June 6-7, 2008. More than 200 specialists, scholars, entrepreneurs, CEOs and government officials from China and abroad attend the conference. Among them are more than 40 international scholars and CEOs, who come mainly from China, the United States, Japan, the United Kingdom, France, Germany, Portugal, the Netherlands, Italy, Ireland, Belgium, Sweden, Australia, New Zealand, and Singapore. Dr. Shuming Zhao, Professor and Dean of the School of Business, Nanjing University, serves as Chairman of the Conference.

The Symposium covers twelve major areas: strategic management, human resource management and development, marketing, entrepreneur and entrepreneurship, international management, organizational development and change, production and operations management, logistics and e-commerce, corporate finance and accounting, banking, finance and insurance, technology and innovation management and cross-cultural management. We received more than 120 papers and 73 papers were accepted after careful and anonymous peer review organized by the committee.

Many people are involved in the conference and have contributed to make it successful. Without their efforts and full support, I do not think that we would be able to hold the conference. I would like to express my gratitude to the Department of Management Science of the National Natural Science Foundation of China and the people's Government of Jiangsu Province who always give us generous support for research and holding international conferences. I would also like to thank the School of Business, Auckland University of Technology, New Zealand; Peter F. Drucker and Masatoshi Ito Graduate School of Management, Claremont Graduate University, USA; Johnson Graduate School of Management, Cornell University, USA; Center for International Studies and College of Business, University of Missouri-St. Louis, USA; Seton Hill University, USA; Faculty of Economics and Business, University of Sydney, Australia, and Maastricht School of Management, the Netherlands for co-sponsoring the conference. I would like to thank Daqo Group; Huaxia Bank — Nanjing Branch; Nanjing Municipal Communications Construction & Investment Holding (Group) Co., Ltd.; Nanjing RichIsland Information Technology Co., Ltd.; Nanjing University EMBA Association; Nantong Ganglian Textile Corporation, Ltd., Jiangsu Lianfa Group; Jiangsu Bote New Materials Co., Ltd.; Shanghai Sunivo Supply Chain Management Co., Ltd.; Shenzhen Airlines Corporation, Ltd., and Training Magazine for their support.

I would also like to thank the internationally renowned professors in economics and management who find time in their extremely busy schedules to come to participate in our conference and make keynote speeches. These include Dr. James Mirrlees, the 1996 Nobel Prize Laureate in Economics and Professor of Oxford University, the United Kingdom; Dr. Ira Jackson, Professor of Claremont Graduate University, U. S. A.; Dr. Michael Hitt, Professor of Texas A&M University, U. S. A.; Dr. Jack Schuster, Professor of Claremont Graduate University, U. S. A.; Professor Ming Huang of Cornell University, U. S. A.; Dr. Malcolm Warner, Professor of Cambridge University, the United Kingdom; Dr. Leif Edvinsson, Professor of Lund University, Sweden, and so on.

I would also like to thank the specialists and scholars for their careful review of submissions, following a rather tough schedule. They are Betty Coffey, Dr. Lloyd G. Gibson, Dr. Joel Glassman, Dr. John Hulpke, Dr.

Aidan Kelly, Dr. Thomas Lange, Dr. Lihua Chen, Dr. Dejun Cheng, Dr. Liangding Jia, Dr. Chunyan Jiang, Dr. Hu Li, Dr. Chunlin Liu, Dr. Hong Liu, Dr. Jing Long, Dr. Jisheng Peng, Dr. Lifang Shi, Dr. Wenbing Su, Dr. Quansheng Wang, Dr. Yonggui Wang, Dr. Xiaolin Xu, Dr. Dongtao Yang, Dr. Zhong Yang, Dr. Xiao Zhang, and Dr. Zhengtang Zhang.

I would like to thank many faculty, staff and my Ph. D. candidates and other graduate students from the School of Business, Nanjing University for their hard work, day and night, to put this conference together. They designed the conference announcement, arranged for reviewing and editing the papers, organized the conference logistics, etc. They are: Zhihong Chen, Wanwen Dai, Yiren Dong, Pengcheng DU, Yongli Guo, Chunyan Jiang, Xiaorong Li, Chunlin Liu, Hong Liu, Jisheng Peng, Shanshan Qiu, Jingshu Shen, Xiangnan Tao, Wenyu Wang, Xiang Wang, Xin Wen, Guoquan Wu, Changsheng Xie, Qin Xu, Dongtao Yang, Wenhong Zhang, Jiyuan Zhang, Wei Zhang, Ziyuan Zhang, Dongmei Zhan, and Lulu Zhou. It would be impossible to hold this conference without their contribution.

I would very much like to thank Professor Keming Wu, Associate Professor Ning He, Lecturer Wensheng Xu, and Yan Wang, who provide high-quality service for translating conference materials and simultaneous interpretation for conference keynote speeches.

I would like to thank all the paper contributors and participants to this conference. Without their active participation, there would not be such a symposium.

Finally, from bottom of my heart, I would like to thank Mr. Jian Zuo, President of Nanjing University Press; Mr. Hao Hu, Deputy Chief Editor of Nanjing University Press, Mr. Jidong Huang, Director of Social Science Department of Nanjing University Press, and Ms. Feiyan Geng, Editor of Nanjing University Press for all their efforts for publishing this conference proceedings. At the same time, I would also like to thank National "985 Project" of China for supporting the publication of this proceedings.

Shuming ZHAO, Ph. D.
Conference Chair of the Sixth International Symposium on
Multinational Business Management
and
Professor and Dean, School of Business
Nanjing University, China
May 8, 2008 at Central University, Taiwan, China

前言

21世纪,全球化进程的加快已成为世界经济发展的重要特点,它已显示出强大的生命力和影响力,正对世界各国经济产生巨大的冲击,尤其是对于传统工业经济时代的管理模式和管理理念提出了新的挑战,因而引起国际社会的广泛关注。为了争占新世纪的制高点,各国都在对传统管理理念及实践进行反思,图变求新。在中国,伴随着WTO进程以及经济转型的逐步深入,越来越多的企业走出国门参与国际竞争,企业管理领域因此也产生了广泛变革。基于此,研究全球化背景下的跨国企业管理理论和方法,探索转型经济中中国企业如何通过管理变革和管理创新,提高管理现代化水平,增强国际竞争力,实现从"中国制造"到"中国创造"转变,已成为管理界面临的重大课题。

"第六届企业跨国经营国际研讨会——转型经济中的企业管理"正是在这一背景下于 2008 年 6 月 6 日 7 日在南京大学召开。来自中国、美国、日本、英国、法国、德国、葡萄牙、荷兰、意大利、爱尔兰、比利时、瑞典、澳大利亚、新西兰、新加坡等近 20 个国家和地区的 200 多位专家、学者、企业家、总裁、政府官员参加了本次大会,其中外方代表 45 人。本次大会主席是南京大学商学院院长赵曙明教授。

本次研讨会共分为 12 个研究主题。它们分别是:战略管理、人力资源管理、市场营销、创业管理、国际管理、组织发展和变革、生产运作管理、物流管理与电子商务、公司财务与会计、银行、金融与保险、技术和创新管理、跨文化管理。大会共收到国内外征文 120 余篇,经过大会组织专家匿名评审,有 73 篇被录用。

这次大会的成功举办离不开很多人的努力和支持。借此机会我想感谢国家自然科学基金委员会管理科学部和江苏省人民政府对我们的研究和举办国际性会议的鼎力资助。感谢协办单位美国康奈尔大学约翰逊管理学院、美国克莱蒙特研究生大学德鲁克管理学院、美国密苏里一圣路易斯大学国际研究中心与商学院、美国塞顿·希尔大学、澳大利亚悉尼大学经济与管理学院、新西兰奥克兰理工大学商学院、荷兰马斯特里赫特管理学院的一贯支持。感谢大全集团、华夏银行南京分行、江苏博特新材料公司、江苏联发集团南通港联纺织有限公司、南京大学 EMBA 联合会、南京富岛信息工程公司、南京市交通建设投资控股(集团)有限责任公司、上海春宇供应链管理有限公司、深圳航空有限责任公司、《培训》杂志社等对我们这次国际会议的支持。

我要感谢 1996 年诺贝尔经济学奖得主、英国牛津大学教授 James Mirrlees 博士,美国克莱蒙特大学教授 Ira Jackson 博士、美国德克萨斯州 A&M 大学教授 Michael Hitt 教授、美国克莱蒙特大学教授 Jack Schuster 博士、美国康奈尔大学黄明教授、英国剑桥大学教授 Malcolm Warner 博士和瑞典隆德大学教授 Leif Edvinsson 博士等,他们在百忙中拨冗前来参加会议并作大会主题报告。

我要感谢为本次国际会议论文评审工作的各位专家学者,他们在时间紧、任务重的情况下,能帮助我们挑选出高质量的论文。他们是 Betty Coffey、Lloyd G. Gibson、Joel Glassman、John Hulpke、Aidan Kelly、Thomas Lange、陈丽花、程德俊、贾良定、蒋春燕、李虎、刘春林、刘洪、龙静、彭纪生、施丽芳、苏文兵、王全胜、王永贵、徐小林、杨东涛、杨忠、张骁和张正堂等。

我们的许多老师、工作人员和我的博士生和硕士生,他们从设计会议通知、组织论文评审、编辑到会议后勤的安排准备,夜以继日地工作。他们是陈志红、戴万稳、董伊人、杜鹏程、郭永利、蒋春燕、李晓蓉、刘春林、刘洪、彭纪生、仇姗姗、沈婧舒、陶向南、王文宇、王翔、温馨、吴国权、谢长生、许勤、杨东涛、张文红、张季媛、张伟、张子源、战冬梅和周璐璐等。没有他们的辛勤工作和充分的准备,我们的这次国际大会就不可能这么顺利地召开,在此,我对他们表示衷心感谢。

吴克明教授、何宁副教授、许文胜老师和王艳老师为大会演讲材料翻译和主题报告同声翻译提供高质量的服务。在此,我对他们表示感谢!

我还要特别感谢各位论文投稿人和参加我们这次国际会议的各位代表,没有他们的积极参与,我们就不可能召开这次会议。

最后,我衷心地感谢南京大学出版社社长左健先生、副总编辑胡豪先生、社会科学编辑部主任黄继东 先生和责任编辑耿飞燕女士为我们正式出版大会论文集所做的一切努力。同时,我要感谢中国国家"985 项目"对出版这本论文集的支持。

> 第六届企业跨国经营国际研讨会大会主席 南京大学商学院院长、教授、博导 赵曙明博士

2008年5月8日于中国台湾中央大学

Table of Contents

	I
	Ш
Part I Leadership and Organizational Behavior in a Transitional Economy	
The Dynamic Model of Virtual Team Learning: A Multi-case Study Ningyu TANG, Zhongming WANG, Bangcheng LIU	3
Contributions of Positive Mood, Negative Mood, and Supervisory Behaviors to Intentional Oganizational Forgetting	
Zhihui JIN, Jianjun SHI	
The Effect of Transactional and Transformational Leadership Behavior on Organizational Citizenship Behavior	17
Keyi WANG, Shuang ZHANG, Yanrui DONG	
The Investigation to the Influence Mechanism of Job Satisfaction to Organization Commitment Xiaojun SHI, Jing YANG	26
Transformation Dilemma of Chinese State-owned Enterprises under Organizational Uncertainty	}1
Research on the Innovation of Organization: Conditions & Methods	19
Values, Beliefs and Important Aspects of a Job: Job Satisfaction in Central & Eastern European Transition Countries	57
Research On the Relationship between Management Communication and Employee Performance	'0
Using and Creating of the Complexity of Organization Change	30
Supplier's Bargaining Power and Their Business Value in the Chinese Market: A Perspective on Social Capital	
Xiaojun WEN	37
A Comprehensive Review of Workplace Incivility Research	14
Research on Relationship between Personality and Commitment Escalation in Chinese Culture Background	
Lijun SUN, Hailin LAN	
Maximizing Organizational Effectiveness: Using Mixture Modeling in Improvement of Person-organization Fit	_
Cody S. DING, Jiyuan ZHANG	19
Empirical Study on the Relationship between Boards of Directors and Other Internal Governance Mechanisms in China	١.
in China	Ü

Part I Human Resource Management in a Transitional Economy

Seven Paradoxes of Chinese Human Resource Management	131
The Research on Appraisal of Competence Model	139
Tripartite Consultation in China: A First Step Towards Collective Bargaining?	146
An Empirical Study of Pay Gap and Performance of Family Enterprise	159
Theory and Practice of Human Resource Management: A Comparative Analysis of Foreign-owned and Chinese-owned Cosmetic Firms	166
Methods to Evaluate Active Labour Market Programmes Used by Governments to Upgrade the Capability of the Labour Force Geoff PERRY	
Research on Human Resource Management System and Organizational Performance: A Test of the Role of Employee Ability and Employee Incentive Xiaobing ZHANG	195
The Innovation Tactics of Enterprise's Knowledge Worker Based on Psychological Contract Xiaoqin GAO, Yunxia SHI	200
A Comparative Study of the Competencies of Chinese Male and Female Business Managers	205
Employees' Career Development and the Key Elements of Competency	213
The Implementation of a New Employment Relations System and Employees' Responses in a Chinese Manufacturing Enterprise Jie SHEN	217
Changing Human Resource Management Strategy and the Sustainable Development of Non-state-owned Enterprises in China Junqing YANG, Yanjun GE	227
The Effects of Human Resource Management on Worker's Well-being: A Comparison between Two Joint Ven Automobile Workplaces Jing LI, Min LI	
Study on the Diffusion and Synergy Innovation of Intellectual Capital in Enterprise Mergers & Acquisitions Cisheng WU, Yuanchun LIN	246
Part I Financial Management, Accounting, Trade and Investment in a Transitional Economy	
Product Market Competition and Identities of Ultimate Owners: Performance Analysis of Chinese Listed Companies Mei XIE, Aihua ZHENG	255

Market Impediments and Regulatory Arbitrage: Evidence from China's Trade Figure Manipulation Hung Gay FUNG, Jot YAU, Gaiyan ZHANG	265
Trade Credit of Chinese Listed Manufacturing Companies: A Panel Analysis Wei ZHAO, Kun LIU	290
Intellectual Capital's Leverage on Corporate Value Dongwei LI, Keyi WANG	301
International Economic Relations and the Application of Fair Value Accounting in China	310
Is Activity-based Costing Popular among Chinese Firms? — A Survey of China's Manufacturers on the Implementation of Activity-based Costing Yanren XIONG, Wenbin SU, Thomas W. LIN	320
Short-term Foreign Funds, a Comparative Study between China and Victim Countries of the 1997 Asian Financial Crisis Weiping LIU	330
Does the Chinese Securities Regulatory Commission Honor Its Promise? ——Evidences from China's Listed Corporations Conducting Split Share Structure Reform Dequan JIANG, Wei ZHANG	339
The Analysis of the Reason for the Withdrawal of Direct Investments by Taiwan Businessmen in Mainland China Yanmei XU, Niya SUN	348
A Study of R&D Efficiency of Biochemical Pharmaceutical Enterprises Based on DEA	356
Part N Enterprise Strategic Management in a Transitional Economy	
Comparison of Knowledge Assimilation and Exploitation with Different Ownership Erming XU, Han ZHANG	365
Analysis and Selection of Supplier Integration Patterns after Corporate Horizontal Mergers Ning XU, Gengshen ZHONG	378
The Four Strategic Changes to Surpass the Traditional Competition Xuanzhong SUN	385
Mission Statements and Strategic Intentions of Vehicle Manufacturing Firms in China	396
Grasping the Great Elephant: Paradigms and Methodology of Strategic Management Jiyong CHEN, Shanshan ZHANG	404
Part V Enterprise Internationalization in a Transitional Economy	
Absorptive Capacity, Competitive Advantage, and Cross-border M&A from Chinese Companies	415
Intra-industry Information-signaling of Foreign Acquisitions: Evidence from China	426
International Entrepreneurship Risk and Case Study: Based on International Entrepreneurship Model 4 Baoshan GE, Jinrui HUANG	134

Foreign Assignments and Knowledge Flows in Multinational Enterprises	441
A Study of Lenovo's Overseas Acquisition and Integration Wenyu WANG, Jingshu SHEN, Tuo WANG	456
Structural Knowledge and Capabilities: A Comparative Study of the Evolution of International Strategies of Chinese Manufacturing Enterprises Mei LIN	467
Entry Order and Performance of Foreign Invested Firms: Empirical Evidence from China	475
Integration-responsiveness Framework for Chinese MNCs: An Area for Future Study	486
Part VI Marketing, Supply Chain Management and E-commerce in a Transitional Economy	
Quality Assurance and Upgrading in Global Supply Chains: Implications for Management in a Transition Economy Peter ENDERWICK	505
Supply Chain of Management Information System: Two Platform-based Structures	519
Case Study of Private Banking of Citibank in China; Chamberlain Service-orientation	529
Internet Banking Adoption by Chinese Americans	539
Trust and Learning as Moderators in Achieving Supply Chain Competitiveness: Evidence from the Chinese Auto Component Sectors	550
Modeling Global Supply Chains: Intelligent Tools for Strategic Supply Chain Management	562
Managing Stakeholder Relations on the Internet in a Transitional Economy: An Empirical Study in China Martin STÖßLEIN, Zhiling TU	 569
Part VI Corporate Culture and Business Ethics in a Transitional Economy	
Complexity Theory and Business Ethics Education	581
Maybe Lost in Culture Translation: A Case in Cross Culture Management Yongqiang LIU, Shuming ZHAO	588
Why Do Companies Create Harmonious Cultures? Comparing the Influence of Different Corporate Cultures on Employees Lianke SONG, Dongtao YANG, Hao YANG	595
Social Responsibility and Public Private Partnership (PPP) as a Tool——A Case in China	604

Construct the Conduction Mechanism of Corporate Social Responsibility in China Under the Principle of	
Living Together	615
Ethics Matters! Ethics Education Matters!	626
Study on Cognitive Structure of the Central Enterprises Social Responsibility Connotation ——From the Summarized Analysis of Social Responsibility Report of the Eight Central Enterprises Chang WANG, Juanni JIAO	634
Part W Sino-Japanese Economic Development and Enterprise Management in a Transitional Economy	
A Modified Behavior Finance Model: Based on a Non-standard Preference and Investors' Heterogeneity Honggang FAN, Guoqing ZHAO	645
Game of Pollution Reduction Investment under Uncertainty	661
Debt Financing and Corporate Performance in China: A Corporate Governance Perspective	670
Rank Order of Universities and Educational Investment Nobuaki HORI	678
The Rationale behind the Repeated Games and Cross-enterprise Collaboration	686
Part X Enterprise Technology and Information Management in a Transitional Economy	
Mechanism and Path of Technological Capabilities Evolution: A Comparative Cross-case Study of Taishan Glass Fiber Company and Sinopec Yizheng Chemical Fiber Company Limited	693
Study of Technology Innovation Efficiency in Large Foreign Military Enterprises and Its Enlightenment to Chinese Enterprises Yun LIU, Wen ZHAO	700
Study of the Knowledge Acquisition, Transfer and Creation in Multinational Corporations	708

Part I

Leadership and Organizational Behavior in a Transitional Economy

The Dynamic Model of Virtual Team Learning[®]: A Multi-case Study

Ningyu TANG¹, Zhongming WANG², Bangcheng LIU³

- 1 Antai College of Economics and Management, Shanghai Jiaotong University, China®
- 2 College of Management, Zhejiang University, China
- 3 School of International and Public Affairs, Shanghai Jiao Tong University, China

Abstract: Using in-depth multi-case study, the paper aims to study the process and characteristics of virtual team learning. It puts forward a three-dimension learning model and a process model of virtual team learning which are supported by the case study. It then integrates these two models into a three-dimension dynamic model of virtual team learning. At last, the paper discusses some other factors that will influence the effectiveness of virtual team learning.

Key Words: Virtual Team Learning, Dynamic Model, Multi-case Study

Increasing development of science and technology has brought dramatic changes into organizations (Alavi & Gallupe, 2003). Currently, it is becoming more and more popular to use teams in organizations (Jarvenpaa & Leidner, 1999). The application of team approach has resulted in the improvement of organization productivity, which has incarnated much more speedy decision-making, innovation and flexibility (Hackman & Morris, 1975). Accompanying with the development of technology, a new type of team—virtual team started to boom in organizations. Learning and working in virtual teams have become popular in many companies and educational institutions (Roebuck, 1998).

The researches on virtual team started in 1990s, and it has become one of the focuses in team research area as well as practice area (Wang & Tang, 2006). Previous literature indicated that, leadership, communication and trust in virtual team were the key factors to determine team productivity. After mid 1990s, more empirical studies have been done in this field, however, few researches have taken virtual team learning into consideration (Martins, Gilson & Maynard, 2004). At the same time, advanced information and communication technology has been regarded more and more as an innovative way to enhance learning experience (Tang & Yan, 2004; Marsick & Dechant, 1997). This study uses in-depth case method to study the learning process of several virtual teams. It tries to answer following questions: How is the process of virtual team learning? What are some of the characteristics of virtual team learning?

1. Research Framework

1. 1 Characteristics of Virtual Team Learning

Leidner and others (Leidner & Jarvenpaa, 1995) classified learning models from learning, knowledge, control of the learning environment and the reality of context and suggested that there existed different leaning theories from different perspectives, such as objectivism, cognitive information process, constructive collaboration and social-culture model. Each model has its own assumptions, and the benefit of application of information technology can be supported from multiple theories (Marks, Mathieu & Zaccaro, 2001). Some others argued that behaviorism, cognitive science and humanism are theories that can support learning via internet most (Yang, 2003). Based on the existing theories, we propose a virtual team learning model for this study. (See figure 1) Virtual team learning can be illustrated from change, control of environment and creation of knowledge. Change means the re-

① This study is sponsored by Shanghai Foundation for Philosophy and Social Science (01BJY003) and Shanghai Educational Committee Foundation for Young Scholar (2004-2005).

② Please contact Tang Ningyu (nytang@sjtu, edu, cn) if there are any questions regarding this paper.

sult of the learning. According to cognitive psychology, people change their cognitive model through learning, while in the eyes of behaviorism, people learn how to behave and get new experience through learning. We suggest that virtual team learning achieve both of them. In virtual team learning, participants' cognitive structure will be reorganized, at the same time, their behavior will be changed. The second dimension, control of environment, is the extent to which learners can have the self-control of learning.

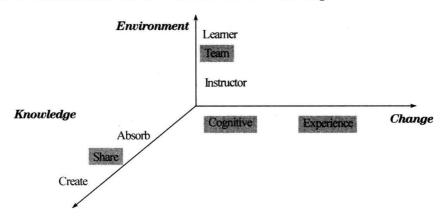


Figure 1 The Three Dimensions of Virtual Team Learning

There are three different kinds of control, one is controlled by an instructor, the other is by a learner, where a learner has the autonomy to decide the pace and content of learning. Technology based learning provides much opportunity for learners to control their learning pace. Team-based learning stands between instructor-controlled and learner-controlled learning, where team decides the pace of learning through team interactions. The third dimension is the creation of knowledge. This dimension varies from passive assimilation of knowledge to active construction and creation of new knowledge. This also reflects that in the process from individual learning to team learning, knowledge sharing is the key to the creation of new ideas and knowledge. Based on this model, we define Virtual team learning as "a process to exchange, transform and transfer knowledge and information among team members across time, space and organizations via technology" (Tang & Wang, 2007). In Virtual team learning, team members share and create knowledge and control learning process collectively to reach the change of cognitive model and behavior model, across boundary and under virtual cycle (Tang, Liu & Jiang, 2004).

1.2 Process of Virtual Team Learning

Kasl et al. (1997) proposed a team learning model which included fragmented, pooled, synergistic and continuous learning.

In our study, we think most of virtual team learning is connected to task complementation. Virtual team learning can be considered as one aspect of team interaction which is a dynamic process. Thus, we take Tuckman and Jensen's team process model into our virtual team learning process model (Tuckman & Jensen, 1977). Table 1 shows our model of virtual team learning process.

Virtual team process	Virtual team learning	Key features
Forming	Fragmented (Individual)	Virtual team forms. Individual members study by them- selves and keep their own ideas
Storming	Pooled	Virtual team members have different ideas. Limited communications among team members
Norming Synergistic		Vir Virtual team members have set up the goals and norms for the team. Team members share and transfer information. New ideas and ways are generated

Table 1 Virtual Team Learning Process

v	Virtual team process Virtual team learning		Key features
	Performing	Continuous	Virtual teams accomplish their goals. Learning continues with the development of the team

However, not every virtual team will get to the performing period. Some virtual teams fail because of lack of trust and poor communication. In our study, we will look at teams ending at different stages of development and process.

2. Research Methodology

2, 1 Case Study Method

Case study is the final product of a field oriented study. It implies that case study does a thorough and integrated analysis on an event or phenomena. In recent years, case study method gradually becomes one of the important research methods in education, management and other social science (Yin, 1994; Wiesenfeld, Raghuram&Garud,1999). Yin addressed that case study is particularly useful for "how" and "why" questions. Furthermore, Merriam (2003) pointed out that case study is helpful for studying the process of certain phenomenon. Single-case or multi-case study can be used in case study. The shortage of single-case is that the case selected may not be the case expected, thus some scholars suggested to use multi-case to study a complex phenomenon (Merriam, 2003). Multi-case can be used to estimate similar results or generate comparisons. We use multi-case method in this study, one is that the study aims to study how virtual team learns and the process of the learning, the other is that we can compare the results of different virtual teams.

2.2 Samples

From 2002-2003, we studied learning process of 72 virtual teams with 4-8 team members each, lasting for about 3-10 weeks. These teams were cross-organizational and all the team members were managers from different functions. The teams were asked to finish one or two leaning tasks in weeks. They were required to communicate via emails and copy to one of the authors. As Yin (1994) suggested, multi-case study usually has 4-10 cases to replicate and test the result, we selected 4 teams from 72 teams as our samples according to duration and task complexity as first order criterion and then communication and learning as second order criterion. This made it possible for us to observe if continuous learning happened with time going and if communication had some effect on virtual team learning.

2, 3 Learning Task

The main task for the virtual teams was to find solutions to one live case which came from their own companies, besides, some teams were required to do some case study before the life case. For the life case, virtual teams firstly needed to identify the problem after analyzing one of the team member's companies, and then found the root cause of the problem followed by the solutions. This problem solving process was quite similar to the real situation where virtual teams were usually task and goal oriented. Cohen (1994) found that productivity of teams was low when there existed fixed answers to the problem and high when the teams were required to solve the problem from different perspectives and with multiple solutions. This study used an open learning task to encourage virtual team learning. The samples of this study were from management training programs and they were asked to apply theories to practice which also implied a transfer of the knowledge to new settings.

Virtual teams started with a face-to-face meeting where they recommended one member as the team leader who was asked to take some responsibilities for the process of virtual team learning. Typically, they would meet once a week again during the process. However, they didn't have enough time to discuss their tasks when they met because of the tight schedule and many other assignments.

We got the data through the emails virtual teams copied to one of the authors. From our earlier interviews