

Transferring Organizational Learning Systems to Japanese Subsidiaries in China*

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ABSTRACT Qualitative interviews and observations were conducted to study the cross-border transfer of organizational learning systems to the subsidiaries of five Japanese manufacturing companies operating in South China. This paper develops a holistic model of the overall process, by integrating knowledge-oriented, routine-oriented, and social/contextual perspectives, each of which plays a necessary role in explaining essential aspects. One feature of the transfer of organizational learning systems entailed arranging local access to, and opportunity to replicate, various types of knowledge repository that contained corporate values as well as technical expertise. A second feature involved the development of collective learning routines through dynamic interplay with evolving, locally based, knowledge repositories. A third feature, in two companies, entailed the creation of enterprise contexts that reproduced the socialization and corporate culture maintenance rituals, and the open plan factory and office designs, that were hallmarks of the respective parent companies, and which appeared highly conducive to the transfer of collective learning routines to the local sites. Findings indicate that successful cross-border transfer of organizational learning systems entails the development and implementation of an overall heuristic design for cultivating collective learning routines through the engineering of enterprise contexts and the responsive management of knowledge repositories.

INTRODUCTION

The notion that organizations have the capacity to learn has spawned a plethora of studies (Crossan and Guatto, 1996; Dodgson, 1993), but no consensus has emerged even on a core definition of organizational learning. Various approaches and understandings remain in play (Easterby-Smith et al., 2000), and in any particular

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study, the chosen characteristics and meanings of organizational learning reflect the researchers' disciplinary backgrounds and specific ontological assumptions (Easterby-Smith, 1997).

We may distinguish three broad streams of research in the field of organizational learning. One research stream has tended to focus on the cognitive aspects of learning by addressing the acquisition, distribution, creation and storage of new organizational knowledge (Huber, 1991). Within this stream, organizational learning is assumed to entail content-updating of the various types of 'organizational knowledge' generated by internal or external sources (Cohen and Levinthal, 1990; Grant, 1996; Spender, 1996). This line of thought corresponds to the 'knowledge-oriented' studies of organizational learning as classified by Easterby-Smith and Lyles (2003). A second stream of research has focused on recurrent patterns of behaviour in organizations, i.e. organizational routines (Cohen, 1991; Cohen and Bacdayan, 1994; Levitt and March, 1988). Its major assumption is that continuous modification and upgrading of collective routines enables organizations to respond to their changing environments. A third stream of research has emerged comparatively recently, reflecting an upsurge of interest in social and cultural milieus in organizations, and focuses on situated learning and the development and institutionalization of social practices (Brown et al., 1989; Gherardi et al., 1998; Lave and Wenger, 1991). The second and third streams of research seem to correspond to Easterby-Smith and Lyles' (2003) 'learning-oriented' studies of organizational learning.

This diversity of perspectives constitutes a challenge to those wishing to develop a comprehensive model of organizational learning. However, we do not see these perspectives as necessarily conflicting. Rather, we see each one as drawing attention to different important elements. In this study, we therefore adopt a 'holistic' view (Lahteenmaki et al., 2001) by incorporating knowledge-oriented, routine-oriented and socio-contextual oriented perspectives as elements within an overall systems model of organizational learning. Our substantive focus in this paper is on the role and interrelationships of these elements in the cross-border, factory-to-factory transfer of organizational learning in Japanese multinational corporations (MNCs) operating in South China.

We chose Japanese companies as one of the contexts because of their reputation for exemplary systems of organizational learning and knowledge creation on home soil in relation to intra-factory processes (Hedlund and Nonaka, 1993; Womack et al., 1990). The intricate contextual richness of organizational learning in Japanese manufacturing organizations (Brannen et al., 1999; Fruin, 1997, 1999) presents a challenge for their transfer overseas. We sought to discover how organizational learning systems could be transferred from Japanese MNCs to overseas subsidiaries where background cultural expectations may differ considerably from those in Japan, and to identify how such transfer was facilitated, arranged and implemented. Although there have been studies of the overseas

operations of Japanese MNCs (Bird et al., 1999; Taylor, 1999) and studies of the differences between knowledge management in Japanese and Western companies (Brannen et al., 1999; Hedlund and Nonaka, 1993; Sullivan and Nonaka, 1986), none have focused on cross-border learning transfer.

We chose to focus on the broader issue of cross border transfer of organizational learning systems for three main reasons. Firstly, research on cross-border learning transfer has focused exclusively on knowledge acquisition and transfer (Inkpen, 1998; Lane and Lubatkin, 1998). There is a need also to understand the role of routines and of socio-cultural contexts, and their dynamic interaction with knowledge transfer. Secondly, the study of cross-border organizational learning transfer has substantial potential practical significance, in view of the increasingly international and collaborative nature of business (Hamel, 1991; Inkpen, 1998). Thirdly, the cross-border issue is a potential source of methodological advantage, since it is in frontier areas, in this case literally as well as figuratively, where otherwise subtle organizational phenomena such as how learning activities actually take place in daily organizational life may be more readily apparent to research informants and thus more readily reportable and observable. We took this opportunity to understand the various elements of organizational learning and their interrelationships, i.e. the nature of what is transferred across borders, the routines through which that transfer process takes place, and the socio-cultural enabling conditions that facilitate the transfer process, as a potential contribution to wider theoretical debates about the nature of organizational learning.

PERSPECTIVES ON ORGANIZATIONAL LEARNING

Ever since Cyert and March (1963) proposed the term 'organizational learning' to describe the adaptive processes of organizations, there has been continued academic interest in the concept (Crossan and Guatto, 1996). Several comprehensive reviews have appeared (Dodgson, 1993; Huber, 1991; Levitt and March, 1988; Miller, 1996), but understanding of the phenomenon itself remains fragmented and contested (Easterby-Smith, 1997), and theoretical perspectives continue to diverge (Easterby-Smith et al., 2000). Debates continue regarding whether organizational learning is best understood as a cognitive, routine-oriented or social/contextual phenomenon (Addleson, 1996; Dodgson, 1993; Easterby-Smith and Araujo, 1999; Huber, 1991; Pentland, 1995), and whether or not these models are complementary to each other (Crossan et al., 1999; Dyck et al., 2005; Jones, 1995).

We shall next briefly sketch out and summarize the broad territory addressed, respectively, by cognitive, behavioural and socio-cultural perspectives, drawing on each of them as a heuristic device to suggest possible implications for the primary focus of this paper, which is the transfer of organizational learning systems across national and cultural boundaries. At this point, we acknowledge some limitations of what might be seen as an artificially contrived trichotomy. These are that the

perspectives overlap in practice and that some authors (e.g. Argyris and Schon, 1978) defy pigeonholing, such that scholars cited under one heading may not necessarily align fully with that particular 'camp' and may even be seen as having their main theoretical thrust elsewhere.

Cognitive or Knowledge-Oriented Perspectives

Cognitive, or knowledge-oriented, perspectives assume what Cook and Brown (1999) call an 'epistemology of possession': acquisition, generation, accumulation, retention, processing and distribution of shared knowledge and knowledge structures (Argote and Ingram, 2000; Birkinshaw et al., 2002; Cohen and Levinthal, 1990; Darr et al., 1995; Fiol and Lyles, 1985; Grant, 1996; Huber, 1991; Szulanski, 1996, 2000; Walsh and Ungson, 1991; Zander and Kogut, 1995). The content of such knowledge may be technical, procedural or strategic (Child and Rodrigues, 1996), its form may be explicit or tacit (Nonaka and Takeuchi, 1995; Polanyi, 1966; Spender, 1996), and it may be encoded, embrained, encultured, embedded or embodied in various repositories (Blackler, 1995).

In the context of cross-border transfer of organizational learning, knowledge-oriented perspectives focus on knowledge transfer from the headquarters (HQ) to the foreign subsidiaries and its use as a tool for generating further, context-specific, knowledge to address local problems and challenges (Gupta and Govindarajan, 2000). The broad notion of knowledge repositories suggests that there are many possible channels through which such knowledge may be transferred, including transmission of physical artefacts, stationing of expert personnel (Argote et al., 2000) and cultivation of locals.

Routine-Oriented Perspectives

Routine-oriented perspectives on organizational learning focus on the repetitive and programmed patterns and sequences of activities in organizations that give rise to shared understanding through the integration, creation, and dissemination of knowledge (Cohen, 1991; Cohen and Bacdayan, 1994; Levitt and March, 1988). Accordingly, they are concerned with how groups adopt, accommodate to, reconstitute, and adapt the routine aspects of collective action (Argyris and Schon, 1978; Feldman, 2000; Feldman and Rafaeli, 2002), which are defined as relatively formalized, habitual, collective organizational practices (Gersick and Hackman, 1990; Gioia and Poole, 1984).

Routines may be transferred from an HQ to a subsidiary through exemplification and imitation, or local variants may evolve through improvisation and the co-participation of local staff. Of potential interest in the study of cross-border transfer of collective learning routines is the extent to which the transferred routines are mechanistic on the one hand or heuristic on the other. Mechanistic

routines include automatic or ritualistic response sequences that are applied without active, critical consideration of alternative procedures (Pentland and Rueter, 1994). Cross-border transfer of mechanistic learning routines may be appropriate for problems and cases with known causes and recurrent identical elements. One risk, however, when exporting them to overseas subsidiaries, besides failure to apply routines as required, may be that the chosen routines are applied rigidly even when not appropriate for the actual problems encountered.

Heuristic learning routines entail dynamic and exploratory knowing activities that are actively, critically and dynamically constituted and reconstituted by members, and thus change in response to the unique or changing situational demands (Feldman, 2000). Another issue in the transfer of heuristic learning routines to a foreign subsidiary may be the extent to which local members are helped and encouraged to assume responsibility for operating such routines, rather than remaining dependent on expatriates and/or on the parent company for hands-on control.

Social/Contextual Perspectives

Social/contextual perspectives adopt view of organizational learning as a process of active, day to day, participation in the construction of social processes, but recognize also that such processes are 'situated', i.e. subject to the influence of various contexts, such as culture and history (Brown et al., 1989; Edmondson, 2002; Gherardi et al., 1998; Lave and Wenger, 1991; Suchman, 1987; Tyre and Von Hippel, 1997). For example, collective learning as culture enables members to collaborate and undertake radical transformation, which in some cases may even be achieved without explicit standards or instructions (Cook and Yanow, 1993; Hutchins, 1991; Weick and Westley, 1996; Weisinger and Salipante, 2000). Social/contextual perspectives also embrace an 'epistemology of practice' and focus on the supportive contexts within which collective *knowing* as an 'aspect of action or practice . . . does epistemic work' (Cook and Brown, 1999, p. 389). The contexts constitute a complex system of knowledge, routines and other enabling conditions that drives the interpersonal and organizational dynamics within and between communities of practice (Brown and Duguid, 1991; Gherardi and Nicolini, 2002; Wenger, 1998).

The notions of 'habitus', a shared, durable and transposable set of social practices (Barrett, 1995; Bourdieu, 1977; Sackman, 1992), and of 'learning curriculum' (Lave and Wenger, 1991), or 'situated curriculum' (Gherardi et al., 1998) are of potential interest in connection with the cross-border transfer of organizational learning. A habitus that develops in a foreign location, under the influence of and reinforced by a particular set of contextual features, may be a force for unifying a learning community with a distinct identity, but may require various culture maintenance rituals to hold it in place and support the socialization of locals. The desire to transplant home-grown organizational learning routines that are of a

heuristic, dynamic nature into foreign soil may lead a company to seek to recreate or simulate its home-based enterprise contexts there. This may, however, be impracticable unless adjustments are made in structural arrangements, such as human resource policies and office and plant layout, that affect the local habitus. Successful learning transfer may thus depend on a balance being struck between replication and local adaptation of enterprise contexts.

The notions of learning curriculum or situated curriculum imply an overlap with knowledge oriented perspectives. For example, the knowledge that sustains collaborative action may be contained in the collaborative activity itself (Barley, 1996; Orr, 1990, 1996; Sole and Edmondson, 2001), such that social interaction involving expatriates and local workers participating together in organizational learning routines is potentially, through implicit role modelling, part of the situated curriculum for the locals.

Summary

We have summarized three major sets of perspectives with their various assumptions about organizational learning. Cognitive perspectives tend to regard organizational learning as acquisition, storage and transmission of collective knowledge; while routine-oriented perspectives frame this as patterning and implicit negotiation of day-to-day practices. Social/contextual perspectives offer a more holistic picture that also embraces the enabling and supporting conditions within which such processes are fostered and maintained. As others have noted (Crossan et al., 1999; Weisinger and Salipante, 2000), given evident interrelationships between these perspectives, adopting any one of them exclusively, or neglecting any one, may give rise to incomplete or distorted accounts of organizational learning. As suggested above, each set of perspectives appears to offer potential insights into the cross-border transfer of organizational learning systems, which is the focus of the present study.

METHODS

The study involved case studies of five Japanese manufacturing companies operating in the Pearl River Delta region of the People's Republic of China. Since 1979, foreign investment has flowed into this part of China, and Japan represents the fourth largest source of foreign capital in terms of both contracted and realized investment value (Sung et al., 1995). Most Japanese investments have been concentrated in labour-intensive industries, such as electronic equipment, electrical machinery and textiles.

The main criterion for selecting companies to invite to participate in our study was that they were Japanese overseas manufacturing subsidiaries employing local staff. Other practical issues, such as accessibility to data and the opportunity to

develop a relationship of mutual trust with respondents, were also considerations. Our sample companies were operating in different industrial sectors, covering electronics, food and beverage, textiles and architectural products. They also differed on other background characteristics, such as ownership structure, the geographical location of the China-based factory, and the length of time the latter had been in operation. This diversity was a source of richness in the data and afforded opportunities to engage in constant cross-case comparisons and to identify what lay at the roots of variations across different cases (Strauss, 1987). The diversity also increased the likelihood that the observed patterns might be generalizable to other manufacturing settings. Detailed descriptions of the sample case characteristics are provided in Table I.

The first author conducted the fieldwork from February 1999 to December 2000. Data were collected through various channels, including ongoing contacts with senior managers, semi-structured interviews, casual and formal on-site observations and internal company documents. Among these, there were three main sources of data.

First, semi-structured, qualitative interviews were carried out in the China-based subsidiaries, each one lasting between one and two hours. These were guided by a written interview protocol, which was revised after several interviews once the emerging themes of the research had taken clearer shape. The structure was applied flexibly, so that the flow of most interviews responded to the interviewee's train of thought. A total of 24 staff were interviewed, ranging from senior subsidiary-level managers (mostly Japanese expatriates) down to team leaders, supervisors and shop floor workers (all local Chinese). Table II gives a profile of the interviewees. The main aim of the interviews was to gain insight into the ways in which the local workforce in the China-based subsidiaries participated in the process of organizational learning, and into how such participation came about. The interview protocol covered four broad topic areas: organizational learning practices adopted in the parent country that were being reconstituted at the local subsidiary; the formal procedures and arrangements undertaken by the Japanese parents for bringing this about; the barriers encountered in transferring organizational learning practices to the local subsidiary; and the local adaptations and solutions to organizational learning transfer problems that emerged. Most interviews were audio-taped, but a small minority of interviewees requested that this not be done in order to protect their anonymity and confidentiality, and in these cases the interviews were fully written up from detailed field notes within 24 hours. Whenever subsequent clarification was needed, interviewees were briefly approached again.

Second, one of the case companies, Kyoden, gave special permission for the first author to sit in as a non-participant observer while five group meeting sessions took place, each with different purposes, structures and formats. Some of these were routinized briefings of the kind that were scheduled daily in each

Table I. Background information on the case companies

	<i>Canon</i>	<i>Kyoden</i>	<i>YKK</i>	<i>Casio</i>	<i>Kirin</i>
Industry	Electrical equipment	Electrical components	Architectural products, garment accessories	Electrical equipment	Food and beverages
Geographic location	Zhuhai	Zhuhai	Guangzhou, Macau, Hong Kong	Zhuhai	Zhuhai
Main products	Cameras, photocopiers, laser printers	Electrical relaying devices	Aluminium construction materials ¹	Electrical pianos	Beer
Ownership structure	Wholly-owned	Wholly-owned	Zipppers ^{2,3}	Joint venture	Joint venture
Nationality of partners	N/A	N/A	N/A	Chinese mainland	Foreign
Registered capital	US\$140 million	US\$18 million	–	US\$4.6 million	US\$7.6 million
Year of establishment	1991	1995	1994 ¹	1995	1996
			1970 ²		
			1976 ³		
Total no. of employees at the site	2,700	750	550*	483	620
No. of Japanese staff at the site	48	25	10*	6	10

Notes:

¹ Guangzhou, ² Hong Kong, ³ Macau.

* Total number at Guangzhou, Hong Kong and Macau, combined.

Table II. Profile of interviewees

<i>Company</i>	<i>Position</i>	<i>Departments</i>	<i>Nationality</i>
Canon	General manager	–	Japanese
	Deputy general manager	–	Japanese
	Factory manager	2nd production	Japanese
	Deputy factory manager	2nd production	Chinese
	Production manager	1st production	Chinese
Kyoden	General manager	–	Japanese
	Vice general manager	–	Chinese
	Production supervisor	1st production	Chinese
YKK (Hong Kong)	Senior manager	Zipper division	Chinese
	Supervisor	Quality control	Chinese
YKK (Guangzhou)	Manager	Production	Chinese
	Team leader 1	Calculation	Chinese
	Team leader 2	Machining	Chinese
	Worker 1	Calculation	Chinese
	Worker 2	Calculation	Chinese
	Worker 3	Quality control	Chinese
	Worker 4	Packaging	Chinese
	Manager	Sales	Chinese
YKK (Macau)	General manager	–	Japanese
Casio	Assistant manager	Production	Chinese
	Assistant manager	Quality control	Chinese
	Supervisor	Production	Chinese
	General manager	–	Japanese
Kirin	General manager	–	Japanese
	Manager	Production and quality	Japanese

department, whereas other ones involved cross-departmental co-operation meetings, which occurred less frequently and had a wider agenda. The observational data provided additional material upon which to base the emerging conceptual categories and gave additional evidence of recurring themes. In preparation for formally observing these events, some specific themes and issues were identified for special attention. These were mainly derived from analysis of the interview data but were also informed by the background literatures on organizational learning. It was thus possible, while observing, to use selective attention to heighten investigators' critical awareness of focal issues (Mason, 1996). Specifically, the purposes of the observation were to (1) identify the various sources of organizational knowledge, (2) understand the host subsidiary's on-going collaborative activities for diagnosing and solving problems at work, and (3) explore the impact of the corporate social and physical environment on how collective work activities were conducted.

Third, documentary data, such as company brochures, operation manuals, regulations and memos from each of the five companies were used as additional data sources. While the interview and observational data included 'non-

canonical' (Brown and Duguid, 1991) evidence about the actual practice of organizational learning, the official documentation provided formal, canonical prescriptions of how organizational learning was intended to take place at the production sites.

Data analysis proceeded according to the 'constant comparison' method (Strauss and Corbin, 1990), and thus oscillated between empirical data and theoretical frameworks. Analysis was initially approached mainly from a cognitive perspective on organizational learning and involved identifying the sources of locally available knowledge that had originated from the parent company, and categorizing them into Blackler's (1995) five-fold typology. Through constant comparison with data, these category definitions were modified and data re-coded under different labels (see Table III).

The scope of analysis broadened as more interviews were completed and formal observations conducted. Two additional clusters of categories emerged in 'grounded' fashion from data. One of these, collective learning routines, resembled Feldman's (2000) action routines, and largely reflected a routine-oriented perspective on organizational learning. Cook and Brown's (1999) distinction between the epistemologies of possession and practice was a major reference point that clarified the difference between knowledge repositories and collective learning routines. The other cluster of categories, enterprise contexts (Ciborra and Schneider, 1992), referred to social and physical conditions conducive for collective learning routines, and reflected a social/contextual perspective on organizational learning. As analysis progressed, observational, interview and documentary data were triangulated to draw out the different meanings of particular phenomena.

BASIC FINDINGS

Transferring Exemplary Components into Local Organizational Learning Systems

It appeared that knowledge repositories, collective learning routines and enterprise contexts were inter-related components of the organizational learning systems at the local sites (see Table III). These elements correspond, respectively, to the cognitive/knowledge oriented, the routine-oriented, and the social/contextual perspectives on organizational learning, but our analysis went beyond existing theory to synthesize new conceptual relationships. Below, we will first separately define and illustrate the transfer of various knowledge repositories, collective learning routines, and enterprise contexts that were identified at each of the five companies. We will then identify and account for patterns of similarity and difference between companies, with special reference to the relationship between enterprise contexts and collective learning routines.

Table III. Component features of the organizational learning systems at the local sites

	<i>Knowledge repositories</i>	<i>Collective learning routines</i>	<i>Enterprise contexts</i>
Subtypes	<ul style="list-style-type: none"> • Physical artifacts • Canonical documentation • Personal experience • Social interactions • Off-the-job training 	<ul style="list-style-type: none"> • Integrative routines • Sensemaking routines • Dissemination routines 	<ul style="list-style-type: none"> • Socialization and corporate culture maintenance rituals • Locally tailored human resource policies • Open physical architecture
Epistemological contributions	Providing stored technical, operational and conceptual tools for knowing	Patterning common awareness, collaborative knowledge generation and combination, and common understanding	<ul style="list-style-type: none"> • Facilitating and motivating engagement in collective learning routines • Constituting environments conducive to dynamic interactions between collective learning routines and knowledge repositories
How transferred	<ul style="list-style-type: none"> • Transmission • Stationing • Cultivation 	<ul style="list-style-type: none"> • Exemplification • Co-participation 	<ul style="list-style-type: none"> • Designs re-created and adapted at the local site

Transferring Knowledge Repositories

The notion of knowledge repositories signifies 'epistemology of possession' (Cook and Brown, 1999) and highlights the importance of knowledge, tacit or explicit, as something acquired, accumulated and circulated within organizations. Interviewees indicated the significance of the quality of technical knowledge or cultural values ensconced in knowledge repositories, i.e. venues, locations, sources or images where knowledge was situated, represented, accessed or generated. For example:

Even though a certain degree of guidance can be obtained from the production manual, difficulties will arise occasionally, when encountering new specifications and technology. In order to overcome the difficulties, some of our production staff will be assigned to (the) Japan and Taiwan (plants) for learning new technology, or alternatively, staff from these two places will join our activities here. (Japanese Factory Manager, Canon)

Some accounts, such as the description by the Japanese Production and Quality Manager, Kirin, included in Table IV, supported the view of cognitive theorists (Cohen and Levinthal, 1990; Lane and Lubatkin, 1998; Van den Bosch et al., 2003) that a firm's knowledge base and 'retentive capacities' (Walsh and Ungson, 1991) govern acquisition and use of new knowledge in problem solving (Fiol and Lyles, 1985).

Our analysis identified five subcategories of knowledge repository, which differed from each other in terms of the forms in which knowledge was stored therein (see Table IV for illustrations). Our categories were physical artifacts, canonical documentation, personal experience, social interactions, and off-the-job training, corresponding, respectively, to encoded, embedded, embodied, encultured and embrained knowledge (Blackler, 1995).

Physical artifacts included product prototypes sent from HQ, samples for reference that either met quality standards laid down by HQ or were defective, quality control charts designed according to HQ's standards posted next to the assembly lines, and notice boards housing production reports, formatted according to HQ's specifications. These repositories held and represented encoded knowledge or 'information conveyed by signs and symbols' (Blackler, 1995, p. 1025), not only referring to past events, but also conveying corporate (i.e. HQ's) values. *Canonical documentation* featured operational manuals, technical instructions, and written reports containing detailed but well codified procedures for responding to various contingencies, and included documentary material originating from HQ. Interviewees indicated that such embedded knowledge was intended to remove the need to consult HQ or to work things out from scratch when something went wrong. *Personal experience*, embodied as discrete individual intelligence among expatriates,

Table IV. Knowledge repositories involved in the process of organizational learning transfer

<i>Forms</i>	<i>Examples</i>	<i>Illustrative quotes</i>
Physical artifacts	Samples from HQ	'The headquarters is responsible for the development of new products. Then they will send the samples here, which will be broken down for understanding the structural elements for subsequent production.' (Chinese Production Supervisor, Casio)
Canonical documentation	Operation manuals and instruction guidelines	'Basically, we try to follow the production and quality standards from the headquarters. We have a specific set of guidelines to follow in every step of production line, which is articulated in great detail to facilitate the work of assembly line workers.' (Japanese General Manager, Casio)
Personal experience	Expatriate expertise available for sharing with local staff	'The contributions of Japanese staff here are their knowledge and experience on production skills and techniques, and the assurance of production control.' (Japanese Factory Manager, Canon) 'They (Japanese expatriates) started by teaching us how to read the design blueprint and interpret the figures in the assembling manual, which described the ways different parts are assembled. Various types of raw materials and their related fabricating procedures were also described, followed by the demonstration of different machine tools. Finally, they showed us how to master the production work experientially on a one-to-one basis by combining both types of knowledge.' (Chinese Supervisor A, YKK/Guangzhou)
Social interaction	Expatriates' role modelling of dialogical conduct	'During conversations with the Japanese technicians, we obtain their experience on new product development, which can help reduce the time and error for developing new products. Based on the experiences that they provide, we can speed up the new product development process. Besides, they can also provide us with some useful guidance for conducting market surveys and brand awareness tests, for holding group discussions and for gathering inputs from each member.' (Japanese Production and Quality Manager, Kirin)
Off the job training	Formal curricula originating from HQ	'They (Japanese) participate together with local staffs for problem identification and knowledge sharing.' (Japanese Factory Manager, Canon) 'Upon the recruitment of new staffs, there are different kinds of training programmes that they have to undergo, such as introduction to the company, on-the-job training, internal training, management training, attitude training, and self-development training.' (Japanese General Manager, Canon)

and built up as well in local employees, comprised stores of tacit and heuristic knowledge derived from accumulated exposure to various contingencies and contexts. The building up of such experiential familiarity among locals had been arranged and supervised by mainly expatriate managers, and was available for re-accessing through intuition, recollection and reflection. That *social interaction* could also be a knowledge repository was evident on occasions when expatriates and local members came together to share their personal experience through dialogue, storytelling, reports, or personal coaching. On such occasions, the encultured knowledge carried in social interaction consisted in commitment to dialogical values originating from HQ, such as spontaneous informal knowledge sharing and devil's advocacy. *Off-the-job training* was a repository of embrained knowledge about job responsibilities, company background and philosophy, industry background, operational skills, quality control techniques, etc, which was offered through formal, structured face-to-face sessions, the content of which often originated from HQ.

Transferring Collective Learning Routines

While knowledge repositories comprised images, locations or situations where knowledge was stored, we identified collective learning routines as underlying patterns and processes undertaken while preparing for, creating, and sharing knowledge. The concept of collective learning routines 'directs attention to the particulars of what problem solvers actually do as they investigate problems and correct errors, and how they use the resources available to them in the process' (Tyre and Von Hippel, 1997, p. 71). It reflects 'epistemology of practice' (Cook and Brown, 1999) and refers to recurrent patterns of collective knowledge processing within or across communities of practice (Brown and Duguid, 1991). Through interviews and observations, we identified three subcategories: integrative routines, sensemaking routines and dissemination routines, each of which could develop in an emergent and implicitly agreed fashion rather than being formally instituted (see Table V for illustrations). Their discovery lent support to theoretical perspectives that cast organizational learning as the coordination of sharing and social participation (Boland and Tenkasi, 1995). All these subtypes represented a different order of phenomena from that of social interaction as a knowledge repository or vessel of internalized dialogical norms derived from HQ.

Integrative routines comprised a mixture of formal procedures and informal, norm-governed behavioural processes that sought to create and reinforce collective psychological ownership of the entire production system at a particular site by coordinating and connecting relevant individuals and groups across horizontal and hierarchical organizational boundaries. These routines ranged from formal cross level reporting and general alert protocols to informal boundary-spanning exchanges. Interviews with China based expatriate Japanese managers in each case study company revealed that they envisaged that all local members, from top to

Table V. Collective learning routines involved in the process of organizational learning transfer

<i>Forms</i>	<i>Examples</i>	<i>Illustrative quotes</i>
Integrative routines	Cross level reporting General alert protocols Spontaneous boundary spanning and cooperation	'We do have some general guidelines from the parent to identify the problem . . . Once the workers have identified any problem, they will inform the superiors immediately. Depending on the nature, some problems, such as the change of processing methods, will be dealt with in a short time, but for the more serious problems, the whole production line will be suspended to wait for the solutions. During the suspension, all responsible teams will gather together to figure out the causes and solutions.' (Chinese Assistant Manager, Quality Control Division, Casio)
Sense-making routines	Prescribed experiential learning cycles Improvised knowing dialogues	'For Canon (Zhuhai), we follow and apply the Canon Production System (CPS) here. I consider it as a bottom-up approach through the implementation of small group activities . . . For standard problems, there is a systematic process within each department to identify the cause, look for alternative solutions, implement the solution and record the results.' (Japanese Factory Manager, Canon) 'There is no specific procedure to conduct discussions. Everyone is free to give opinions and reach consensus. In case a consensus cannot be reached, we will refer the decision to the upper levels to make a final judgment based on their experience, evaluation of costs and benefits and product image. Only the team leaders will join the discussion process, whereas the workers are more involved at the problem identification stage.' (Chinese Assistant Manager, Quality Control Division, Casio)
Dissemination routines	Reports, briefings and announcements	'Basically, we adopt the production process and practice from the headquarters. Depending on the seriousness of the issue, results of the problem-solving meetings are communicated to the staff in various ways. For some minor technical problems, the department manager will inform the staff personally, whereas issues with cross-departmental concerns are distributed to the persons in charge in a report format. Company-wide changes are either announced at the corporate meeting or are written into the instruction manual for future reference.' (Chinese Production Manager, Canon)

bottom, would participate willingly in various reporting, preventative, and co-ordinating mechanisms, thus replicating the integrative routines within the parent company. This aspiration paralleled an ideal type learning system that was tightly coupled, 'heedfully interactive' (Weick and Roberts, 1993), and based on spontaneous cooperation. In practice, as we discuss later, the tightness of this coupling appeared to vary from company to company.

Sensemaking routines entailed procedures and processes of collective inquiry, dialogue, data analysis and ideas generation (knowing-in-action) that were invoked to solve problems. While, as described in the subsection on knowledge repositories, personal experience could be a repository of embodied knowledge carried by individuals and social interaction could be a repository of encultured knowledge carried among a group, sensemaking routines entailed situated acts of collective knowledge creation or knowing-in-action. Two sub-subtypes of sensemaking routine were identified in the research which resembled the distinction drawn earlier between mechanistic and heuristic routines. One of these entailed applying an experiential learning cycle prescribed by the respective HQ to recurrent production problems that were characterized by low levels of ambiguity and uncertainty i.e. 'usual operations' (Koike, 1994). The other sub-subtype involved improvising knowing dialogues when facing idiosyncratic situations that were characterized by relatively high levels of ambiguity and uncertainty, for which no single individual had sufficient expertise to tackle alone, i.e. 'unusual operations' (Koike, 1994). Such dialogues followed patterns sketched out less extensively by HQ and entailed enacting *ad hoc* but nonetheless orderly processes of cooperation and arbitration. In such cases, decision authority often originated within a single group of local employees at the lowest hierarchical level, then broadened out to become a cross-departmental issue where expatriate staff became involved, and subsequently was delegated upwards through a series of discussion forums until consensus was reached.

Dissemination routines, often programmed by HQ, governed transmission of conclusions arising from integrative and sensemaking routines and sought to publicize these lessons throughout the organization via written reports, briefing meetings, or announcements. Interviewees explained how the selection of channels through which newly created knowledge was transmitted depended on the nature and scope of the problem that had been tackled and solved.

There was evidence of mutual causation between knowledge repositories and collective learning routines, as portrayed in Cook and Brown's (1999) metaphor of the 'generative dance' between knowledge and knowing. In some cases, encounters between knowledge repositories and collective learning routines appeared to give rise to new knowledge repositories. For example, the Chinese Deputy Factory Manager at Canon described how a sensemaking meeting might examine physical artifacts (knowledge repositories) in order to diagnose the causes of a production problem, followed by discussion at a series of integrative forums, with an agreed

solution being recorded as an amendment to the instruction manual (knowledge repository). In other cases, encounters between knowledge repositories and collective learning routines could also give rise to changes in collective learning routines. For example, one interviewee explained how he and his colleagues handled quality issues arising from customer complaints:

Suggestions are given, based on our past experience from previous problem testing. Those ideas have been tested and found to be feasible in the past. There is no fixed procedure to follow, but we will try to support our opinions with objective facts and figures. If there is no supporting information, it just depends on our experience. Yes, as the content of the complaints fits mainly into a few categories, we know more or less how to deal with them. If it is a special case, it will take a longer time to figure out how to solve it. (Chinese Supervisor, Quality Control, YKK, Hong Kong)

Thus knowledge repositories and collective learning routines performed mutually reinforcing and complementary epistemic functions, with each serving to develop and refine the other in an ongoing 'dance'.

Transferring Enterprise Contexts

We defined enterprise contexts as the managerially engineered social and physical milieux permeating the organization that served to convey collective meanings and purposes to members. Our analysis identified three types of relevant enterprise context that were potential facilitators of collective learning routines (see Table VI for illustrations). One of these types consisted of *socialization and corporate culture maintenance rituals*, corresponding to a focal concern of social/contextual perspectives on organizational learning (see Cook and Yanow, 1993; Gherardi et al., 1998; Nicolini and Meznar, 1995). The second type was a *balance of Japanese-imported and locally tailored human resource management policies*, while the third was *open physical architecture*. These latter two types of enterprise context entailed institutional features that are not typically discussed as part of the social/contextual perspective.

Corporate culture has been defined as a set of shared, contextually relevant meanings (De Long and Fahey, 2000; Eppler and Sukowski, 2000) serving to modify and reinforce social behaviour (Louis, 1983), and to facilitate coordinated action by providing coherent form and collective identity (Smircich, 1983). Interviews and observations suggested that there were well-orchestrated *socialization and corporate culture maintenance rituals* that were formal and mandatory at some, but not all, sites. Where they were prevalent, they appeared to have originated from the respective Japanese parent companies, as means to symbolize, sustain and strengthen solidarity and team spirit and foster common vision, identity and

Table VI. Enterprise contexts involved in the process of organizational learning transfer

<i>Forms</i>	<i>Examples</i>	<i>Illustrative quotes</i>
Socialization and corporate culture maintenance rituals	Formal, mandatory rituals	‘Here are the basic principles of our company, “Mutual respect, cohesiveness and strengthening the power of co-operation”. As we are in the manufacturing sector, it is very important to align everyone to the common goals of the company. There is a mandatory requirement for everyone to greet each other, whether they are from the same department or not, in the morning and say goodbye before going home. This is intended to build up the atmosphere of collegiality in the workplace. It is our hope to build up a family-like atmosphere within the company, and we are working hard towards this.’ (Japanese General Manager, Kyoden)
Balance of imported Japanese and locally tailored human resource management policies	Policies tailored to local needs – fast track promotion schemes	‘Some human resource management practices are changed to accommodate the social and cultural differences in China. Firstly, the staff are assessed on a more frequent basis. In the past, the appraisal was conducted annually, but now it has changed to be a monthly one to accommodate the mentality for gaining short-term money in China nowadays. The young people have difficulty accepting a long-term promotion plan. Many junior staff with university education leave the company for a better remuneration package offered by the western companies. Secondly, the remuneration plan should be changed according to different age groups. The benefit of the stability of working in a Japanese company is no longer an attraction for young university graduates. They prefer to work in a company with a fast career track. It is difficult for them to appreciate the advantages of seniority-based promotion system.’ (Chinese Production Manager, Canon)
Open physical architecture	Open plan offices – negative example	‘In the traditional Japanese organizations, all employees share an open office. The managers usually sit with their subordinates on a large floor space. One good thing about this is that the information can circulate easily. For example, when the manager points out someone’s mistake, the others will take note and remind themselves not to commit the same mistake again. We can’t apply the same arrangement here, because we occupy second hand office premises to save costs. I’ve been proposing to change the office setting for months, but there has been a lot of resistance. Some people say there’ll not be any privacy. Some even link this issue to the deprivation of basic human rights.’ (Japanese General Manager, Kirin)

meanings. As we report later, these rituals appeared to help to orient local employees' behaviour toward collective learning, and thus to build communities of practice (Lave and Wenger, 1991).

Interviewees identified the need for an appropriate *balance of Japanese-imported and locally tailored human resource management policies* in institutionalizing collective learning in the workplace. Some policies had been transferred from Japan relatively unchanged. For example, in most of the companies, interviewees mentioned the importance of recruiting fresh University graduates or school leavers, and of monitoring the number of process improvement suggestions and including this as an item in the performance appraisal of local staff. On the other hand, some policies had been developed specially for the Chinese context. For example, interviewees in all the companies mentioned the importance of attractive financial incentives to contribute to productivity improvement consultation schemes. Some, like the Chinese Production Manager at Canon, quoted in Table VI, mentioned that such instrumentally oriented policies contrasted with those adopted in Japan. Indeed the literature indicates that in Japan, systems based on *kaizen*, or continuous improvement, assume voluntary employee participation (Imai, 1986). Another example of local tailoring mentioned by the Chinese Deputy Production Manager at Canon, was a focus on earmarking an elite group of locals at supervisory and senior operative levels for socialization into Japanese culture:

We consider the local managers who have joined the company from the beginning as a buffer to reduce the inconsistency between the Japanese model of management and local indigenous culture.

The need for such local tailoring may have been a reflection of the greater mobility of the Chinese labour market (Bjorkman and Lu, 1999) and rising material aspirations among the younger generation (Ralston et al., 1999).

Open physical architecture, as manifest in factory layout and office architecture, was reported in some of the companies as an important means for reducing barriers to social interaction, and for increasing information accessibility and facilitating information flow, questioning and discussion. For example, a Chinese supervisor at YKK mentioned that having each division occupy one column of desks in the office facilitated cross-divisional consultation. There is a parallel to this in theoretical ideas that common working territory indirectly builds information redundancy (Nonaka, 1990) and thus encourages augmentation of a common knowledge pool (Dixon, 2000). However, it was not always possible to transfer this Japanese-style arrangement to the local sites. For example, as quoted in Table VI, the Japanese general manager at Kirin preferred open office design as a means of encouraging spontaneous, ac-hoc discussions, but lamented that it had not been technically possible to implement this arrangement.

INTER-COMPANY SIMILARITIES AND DIFFERENCES

We carried out a cross-case analysis (Eisenhardt, 1989; Yin, 1994) of the five companies to identify patterns of similarity and difference. Overall we found that the five companies were relatively similar to one another in terms of their usage of knowledge repositories and their inclination to adopt a balance of imported Japanese and locally tailored human resource management policies. However, in terms of inter-company differences, it appeared that two companies, Kyoden and Canon, tended to place more emphasis on building Japanese elements into the local enterprise contexts than did Casio, YKK and Kirin. Furthermore it appeared these more 'Japanized' enterprise contexts gave rise to stronger engagement by local employees in the collective learning routines. We now go on to give fuller descriptions and explanations first about the similarities and then about the patterns of difference between the companies.

Patterns of Cross-Company Similarity

Regarding knowledge repositories, there appeared to be no major differences between the five companies in terms of the relative richness and accessibility of HQ-originated material stored in the various types of knowledge repository at the local sites. It was evident from the interview responses that at every local subsidiary, the essential operational knowledge existed in multiple forms. At each site, the inputs from the parent company were manifest, for example, as technical training (off-job training), instruction manuals (canonical documentation), samples (physical artifacts), expatriate assignments (personal experience) and expatriate role modelling (social interaction). There appeared to be a continuous flow of firm-specific knowledge and other relevant up-to-date technical guidance from the respective HQ into these repositories at the local subsidiaries to meet daily work demands. Thus it appeared that local employees at each subsidiary had abundant opportunities to acquire requisite knowledge.

Another area of similarity between all five subsidiary companies concerned the *balance of imported Japanese and locally tailored human resource management policies*. In each case, according to interviewees' accounts, performance management policies were in many respects locally tailored, and none of the companies embraced traditional, Japanese-style reward systems and policies that assume a long-term career orientation (Abegglen and Stalk, 1985; Clark, 1979; Fruin, 1992). Accordingly, none of them adopted slow-track promotion, or low initial salary progressing gradually to higher pay, or emphasis on non-monetary rewards. Interviewees, such as the Chinese Production Manager at Canon, quoted in Table VI, opined that since Chinese workers did not possess the same level of work commitment as their Japanese counterparts, and because the booming Chinese economy provided many job opportunities, fresh graduates would not be content to remain as junior

staff for any length of time. A similar point has been made in the literature (Bjorkman and Lu, 1999).

Patterns of Cross-Company Differences

There were notable differences among the five case companies with regard to the extent to which they had introduced enterprise contexts that resembled those at the respective parent companies in Japan. Two companies, namely Canon and Kyoden, appeared to have designed enterprise contexts that were relatively more 'Japanized' than at YKK, Casio and Kirin. We shall argue that these more Japanized enterprise contexts gave rise to deeper and more extensive participation by local workers in collective learning routines.

Managements at Kyoden and Canon reported paying close attention to socialization and corporate culture maintenance rituals, which they referred to as 'behaviour modification programmes', as means of promoting, role modelling and inculcating their respective sets of company values and norms such as team spirit, harmony and quality. At both companies, every employee wore a uniform, with managers distinguished only by the colour of their hats, and various formal or informal events reflecting a typical image of a domestic Japanese firm (Kilduff et al., 1997) took place both during and outside office hours. For example, the daily morning gathering observed at Kyoden began with a mini-marathon run, followed with gymnastics and ended with singing and chanting of company songs and slogans. Every Kyoden employee, from the general manager down to the operative workers, participated in the various exercises and activities in a strikingly well synchronized manner that resembled a military platoon. The top management view at Kyoden was that since the production process was labour intensive and required close intra- and inter-group cooperation, it was necessary to organize such rituals and activities in order to cultivate among the local Chinese an inclination to work and learn in teams. For example, the Chinese Vice General Manager said:

Our workers are recruited from different parts of China. They have diverse backgrounds and attitudes. We would prefer to have people with a good character, so it very important to change their previous behaviour in order to fit the culture of the company.

Similarly, at Canon, as one means of role modelling and reinforcing desired behaviour, formal award ceremonies were occasionally held to honour exemplary employees who demonstrated the qualities of the 'Canon Man'. At these events, top managers praised such employees for embodying corporate virtues such as mutual co-existence with customers, other employees, the wider community, and the physical ecology; and for manifesting the 'spirit of three selves', i.e. self-appraisal, self-initiative and self-control. While it could be said that such events

bore some similarity to traditional Communist labour model campaigns (Chan, 1997), the essential difference was the focus on company philosophy, ideology, symbolism and rhetoric rather than on those of the Party. 'Heart sharing' meetings between local Canon supervisions and expatriate managers were arranged once a month, with the immediate aim of raising and clearing up work-related misunderstandings and disagreements, and with the ultimate aim of cultivating harmony and mutual respect. This sense of unity was seen as vital for reproducing the company culture:

The senior staff members play a significant role in integrating new staff into the company and helping them to understand the company culture. They will act as a role model for the others to follow. New members learn the standards of practice by observing the daily operations and engaging in the process themselves. Besides, the leaders will continuously assess new members' behaviour to determine whether they are acting in a manner that is consistent with the 'Canon Way'. Appreciation of the corporate culture of Canon facilitates the way of thinking and the problem solving process. (Chinese Production Manager, Canon)

By contrast, interviewees at the other three companies reported that the respective managements channelled relatively little effort into socialization and corporate culture maintenance programmes and focused exclusively on task-oriented values. For example, at YKK there was no mandatory requirement for the workers to wear uniforms, while at Casio and Kirin only front line and supervisory staff wore them. A Chinese supervisor at Casio explained that while the top management had sought to instil loyalty and citizenship when the plant was first opened, and had even arranged sessions where employees were taught company songs and slogans, because of general apathy this was discontinued after a few sessions. The company had subsequently focused its socialization efforts on instilling quality and cleanliness discipline. Managers at Kirin and YKK likewise indicated that while their respective companies sought to get employees to accept devolved responsibility and quality principles, there were no deep socialization efforts oriented to solidarity. For example, the Japanese Production Manager from Kirin explained that his company regarded Chinese employees as not yet ready for Japanese socialization methods:

On the other hand, by introducing the Japanese (management) approach here, we could improve the capability of individual judgment for everyone here. The objective is to strike a balance between these approaches, which, I think, is more suitable to China. But the Chinese still need to make some effort to get used to this process. These are some legacies from the Chinese Communist Party. I think they can change if they try.

Kyoden and Canon differed in another way from the other three companies, in that they had adopted relatively more open physical architecture. Enjoying full or majority ownership of the local site may have given them greater freedom to replicate Japan-style office and factory layout, and they were able to provide abundant physical space for employees to intermingle and share ideas. It was observed that at both Kyoden and Canon, all employees, from top management to frontline operative workers, had their desks located in large open spaces that, aside from some smaller meeting rooms, each covered an entire storey of the low-rise factory premises. By contrast, Casio and Kirin did not have sole ownership rights over their premises and had not been in a position to design the factory and office space in accordance with their ideals, and YKK was in a similar position, for historical reasons. In these three companies, there were physical constraints on situated collective learning. For example, the building that housed Casio was around seven storeys tall, and had compartmentalized offices. Similarly to the Japanese General Manager at Kirin, quoted in Table VI, the Japanese General Manager at Casio complained about the inconvenience of accessing the workers in different departments on different floors, which, he said, made coordination difficult. Once again, there are connections with the literature, which on this matter suggests that removing physical barriers to inter-group exchange may reduce the problem of information 'stickiness' (Von Hippel, 1994).

Interviewees' accounts suggested that the relatively high levels of Japanization that characterized the enterprise contexts at Kyoden and Canon had helped to foster relatively higher levels of commitment and co-operation than at the less Japanized subsidiaries. One of the Kyoden managers said of the local workers:

They have developed very close relationships among each other, which has been our intention and expectation. This has been developed mainly by their attendance at the morning exercise sessions and by their allegiance to the company's instructions and culture. By participating in these various kinds of activity, a sense of cohesiveness and family-like feeling is nurtured. (Chinese Vice-General Manager, Kyoden)

The Japanese production manager of Canon stated, with satisfaction, 'We have followed the traditional culture of Canon and encourage close cross-departmental cooperation and total employee participation in the production process. The different departments act complementarily with one another.'

Accounts suggested also that production line employees at Kyoden and Canon participated extensively in integrative, sensemaking and dissemination routines. At Kyoden, in addition to ad hoc meetings, there was a scheduled morning briefing ('head encountering') meeting within each department, where besides the daily announcements and reports, any worker could raise issues. Immediately afterwards, each team would hold its own intensive and interactive discussions. Various

cross-departmental meetings for relevant stakeholders were scheduled weekly on specific topics, such as quality control, production progress, logistics and customer preferences. There were also monthly divisional meetings attended by all managers, supervisors and some front-line staff representatives, at which each department reported problems that it had encountered, recommended solutions, and sought feedback from other departments, thus enabling lessons to be shaped and shared across the Kyoden factory. Similar kinds of regularly scheduled meetings were held at Canon, in addition to which each worker participated in quality circles (QCs), and *kaizen* through membership of at least one intra- or inter-departmental team, specialized task force or ad hoc group. Each of these groups was assigned specific quality-related objectives and was expected to share new ideas and solutions to other colleagues on an informal but regular basis. As quoted in Table V, the Japanese Factory Manager at Canon indicated that the company was following a 'bottom-up' approach.

That the Canon and Kyoden subsidiaries had, like the rest, tailored their performance management policies to local demands, by making them more individually and instrumentally oriented, did not appear to detract from employee commitment, cooperation, or participation in the collective learning routines in these two companies. Indeed, interviewees there, such as the Chinese Production Manager at Canon, quoted above in the section on transferring enterprise contexts, indicated that such policies had enhanced these outcomes, noting, for example, that fast-tracking elite local workers who had assimilated Canon's or Kyoden's cultural values made them more prominent role models and cultural intermediaries.

By contrast, reports from Kirin, Casio and YKK suggested that local employees were less committed to the respective core corporate values of their Japanese parent company, such as collective mentality, persistence and reciprocity. For example, the Japanese general manager at Casio said that the local employees tended not to participate in company activities outside formal working hours, while the Japanese Production and Quality Manager at Kirin lamented that the locals did not regard quality assurance as everyone's responsibility, and would accept accountability only for their own operations. At YKK, interviewees mentioned that there was a competitive orientation among employees that appeared to dampen team spirit. For example, a Chinese Quality Control supervisor from YKK (Hong Kong) complained, 'A number of people are not willing to share their knowledge or teach others'.

Furthermore, unlike at Kyoden and Canon, where local employees were said to accept responsibility and collaborative working, interviewees from Kirin, Casio and YKK indicated that local frontline workers at these less Japanized companies tended to avoid responsibility and preferred to operate as loosely coupled individuals. Reports suggested that they made relatively few suggestions, were slow to gather together when problems arose, were reluctant to participate actively in team deliberations, and preferred to pass problems upwards.

Interviews with top managers at Kyoden and Canon suggested at least four reasons why there was little outward resistance to the Japanese management practices in these two companies. First, a concerted effort was made to socialize new recruits into prevailing corporate norms from day one, even before training was provided in basic job tasks and work skills. During their first week, they received intensive classroom instruction in appropriate social conduct and discipline. This training was continually reinforced on the job and in daily encounters with senior colleagues. Second, as mentioned in the discussion of enterprise contexts, the companies retained their traditional Japanese practice of recruiting fresh graduates and school leavers. Kyoden and Canon placed special emphasis on this. Thus there was no need for new recruits to 'unlearn' social conduct acquired in previous employment. Third, and related to this, most of the new employees were recruited through labour agencies from the rural and relatively poorer parts of China, and had little prior exposure to the industrialized world. Fourthly, there was a relatively high turnover rate (around 20 per cent in the first year) among new recruits. Thus the early working experience constituted a self-selection process whereby those who did not accept or who could not adapt to Japanese corporate norms and management practices left the company.

DISCUSSION AND CONCLUSIONS

The holistic grounded theory of the cross-border transfer of organizational learning systems that emerged from our study is based on a combination of knowledge-oriented, routine-oriented, and socio-contextual oriented perspectives, with each perspective explaining distinctive and essential aspects of the transfer process. We now summarize six main substantive findings about this process. The first two, in aggregate, cover the nature and content of the knowledge repositories, their function, and the function of their contents, in cross-border knowledge transfer. The next two address how collective learning routines and knowledge repositories interrelate as factors in the cross-border transfer of organizational learning systems. The final two findings concern forms of 'Japanization' of enterprise contexts, such as the reproduction of the respective parent companies' socialization and corporate culture maintenance rituals, and open physical architectures, and their impact on employee involvement in collective learning routines at the local sites.

First, part of the process of transferring learning systems from the parent companies to the local subsidiary sites entailed providing local access to and arranging replication, where required, of five types of knowledge repository: physical artifacts, canonical documentation, personal experience, social interaction, and off the job training. This point connects the existing literature on the 'knowledge-oriented' studies of organizational learning (Easterby-Smith and Lyles, 2003) with our data-grounded adaptation and reinterpretation of Blackler's (1995) work on knowledge repositories.

Second, the salient content of the knowledge repositories involved in the transfer of organizational learning systems pertained to corporate values as well as to technical expertise. This point builds on the literature on international knowledge transfer by identifying the importance of the affective/cultural domains of knowledge (Sackman, 1992; Weisinger and Salipante, 2000), thus indicating the need for a synthesis with literature, cited earlier, on social/contextual perspectives.

Third, the quality of the knowledge ensconced in the knowledge repositories played a key function in enabling employees at the local subsidiary sites to create, share and disseminate skills and know-how and thus engage in collective learning routines. This point reinforces a general thrust of the existing literature on international knowledge transfer (Inkpen, 2000; Inkpen and Dinur, 1998; Lane et al., 2001), while suggesting a need for a synthesis with the literature, cited earlier, on routine-oriented perspectives, which form part of the body of 'learning oriented' studies of organizational learning (Easterby-Smith and Lyles, 2003).

Fourth, the collective learning routines of the local subsidiary sites were neither direct replicas nor even adaptations of the collective learning routines of the parent companies, nor did they entail remote-accessing of the latter. Rather, they evolved at the local sites through dynamic interplay and mutual causation with the evolving locally-based knowledge repositories. This point, not evident in the extant literature, indicates that the cross-border transfer of organizational learning systems is a heuristic process that may be facilitated, rather than an algorithmic process that can be prescribed, and entails a generative dance between collective knowledge and collective knowing (Cook and Brown, 1999) at the local site.

Fifth, in the two companies, Kyoden and Canon, where locally developed enterprise contexts were more 'Japanized', as reflected in reproduction of the respective parent companies' socialization and corporate culture maintenance rituals, and of open plan factory and office layout, the transfer of collective learning routines to local sites appeared more effective, as manifest in higher involvement by grass-roots employees.

Sixth, the enterprise contexts that were developed in all five subsidiary companies involved a balance between Japanization and local tailoring. Just as with collective learning routines, enterprise contexts were not directly 'transplantable' from parent company soil to local subsidiary soil. This was evident with human resource management policies, where all subsidiaries needed to address local labour market forces by emphasizing short term financial incentives. Furthermore, legal, financial and physical constraints prevented YKK, Kirin and Casio, the three relatively less Japanized subsidiaries, from adopting open plan factory and office architecture.

One slight caveat about finding five is that differences in the degree of Japanization of enterprise contexts may not have been the only sources of inter-company differences in the effectiveness of the transfer of collective learning routines, for as finding three indicates, collective routines depend also on the content of available

knowledge repositories. As argued by Cohen and Levinthal (1990), the level, extent, and relevance of prior knowledge can affect the 'absorptive capacity' of individuals and organizations, i.e. their ability to acquire, integrate and disseminate new knowledge. Thus it is possible – although we found no evidence of this – that local recruits at Casio, Kirin, and YKK may have had relatively less prior knowledge than the local recruits at Canon and Kyoden, and thus less able to take an active role in diagnosing problems and giving suggestions. Further research could take into account the prior knowledge among local workforces as a variable in cross-border organizational learning transfer.

Subject to this caveat, we may draw four main implications from our findings for the cross-border transfer of learning systems that are generalizable beyond Japanese manufacturers to MNCs as a whole. Firstly, it appears feasible, within institutional, economic and physical constraints, to engineer the cross-border transfer of enterprise contexts such as socialization rituals and open physical architecture to foreign subsidiaries. Secondly, transferring these enterprise contexts, while also arranging local access to and opportunity to replicate knowledge repositories that are rich in high-quality technical and value-based knowledge may provide a platform (Purvis et al., 2001) for the emergence of collective learning routines that resemble those of the parent company. Thirdly, the dynamic interplay between emerging collective learning routines and the knowledge repositories constitutes a common 'learning field' (Apfelthaler et al., 2002) that aligns different groups, in this case Japanese expatriates and local Chinese, within an over-arching organizational learning system (Wenger, 2000). Fourthly, a summary conclusion is that cross-border transfer of organizational learning systems entails an overall heuristic design for cultivating collective learning routines through the engineering of enterprise contexts and the responsive management of knowledge repositories.

These four implications may appear on the surface to run counter to at least two findings from prior research. The first of these is that increased anxiety and resistance are provoked among cultural groups that are *forced* to change their previous approach and accept foreign concepts, designs, tools and techniques (Child and Czegledy, 1996; Simon and Davies, 1996). The second is that attempts to transfer culture-specific practices are likely to generate problems of mutual adjustment and understanding (Easterby-Smith and Wu, 2000; Liu and Vince, 1999). In our research, however, it appears that the introduction of foreign elements into the social/contextual systems at Kyoden and Canon did not invoke significant resistance among local workers.

Why was there an absence of overt resistance to the cross-border transfer of organizational learning at Kyoden and Canon? In the section on 'patterns of cross-company differences', we identified four factors: induction socialization from day one, recruitment of fresh school leavers and graduates, recruitment from rural areas and selection socialization through turnover, as possible reasons. Two other factors may have also played a role. Firstly, the respective managements did not

attempt to import their entire human resource management systems from Japan, and instead adapted their performance management policies to the realities of the local labour markets, reorienting them toward instrumental incentives and rewards. This element of tailoring may have helped the Kyoden and Canon managements to avoid giving the impression of *forcing* local employees to engage in alien culture building and collective learning practices. Secondly, both companies possessed wholly owned greenfield sites that gave them the freedom to construct open architecture from the outset, rather than imposing radical post hoc changes in spatial working conditions. Together these six factors may have helped both companies to build enterprise contexts that a critical mass of local workers found congenial rather than coercive, thus overcoming barriers that might otherwise have arisen from inter-cultural differences in assumptions, norms and values.

This study focused on a part of the world that is rich with contextual challenges and economic potential. The implications of our findings with regard to the role of enterprise contexts in facilitating transfer of collective learning practices are potentially substantial. We recognize, however, that gaps remain in our understanding of the transfer of strategic knowledge and of heuristic forms of collective learning routines, the impact of knowledge transfer on local performance, and the role of social interaction between expatriates and locals as a component of the situated curriculum. Hence we suggest that further empirical work is needed to explore the cultural, physical and institutional contexts in which cross-border organizational learning transfer takes place, and that such work should harness diverse but complementary analytical perspectives on organizational learning, including social/contextual perspectives, and should take physical architecture and human resource policies into account.

Another area that requires further research concerns the issue of employee resistance. There is more to resistance than outward behaviour (Knights and McCabe, 2003), but we based our analysis on observation and on interviews conducted mainly with the managerial and supervisory staff. Further research would cast more light on this issue by probing the feelings and attitudes of local front line staff concerning the importation of foreign enterprise contexts.

NOTE

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REFERENCES

- Abegglen, J. C. and Stalk, G. Jr (1985). *Kaisha: The Japanese Corporation*. New York: Basic Books.
Addleson, M. (1996). 'Resolving the spirit and substance of organizational learning'. *Journal of Organizational Change Management*, **9**, 1, 32–41.

- Apfelthaler, G., Muller, H. and Rehder, R. (2002). 'Corporate global culture as competitive advantage – learning from Germany and Japan in Alabama and Austria?'. *Journal of World Business*, **37**, 108–18.
- Argote, L. and Ingram, P. (2000). 'Knowledge transfer: a basis for competitive advantage in firms'. *Organizational Behavior and Human Decision Processes*, **82**, 1, 150–69.
- Argote, L., Ingram, P., Levin, J. M. and Moreland, R. (2000). 'Knowledge transfer in organizations – learning from the experience of others'. *Organizational Behavior and Human Decision Processes*, **82**, 1, 1–8.
- Argyris, C. and Schon, D. (1978). *Organizational Learning: A Theory of Action Perspective*. Reading: Addison Wesley.
- Barley, S. R. (1996). 'Technicians in the workplace – ethnographic evidence for bringing work into organization studies'. *Administrative Science Quarterly*, **41**, 3, 404–41.
- Barrett, F. (1995). 'Creating appreciative learning cultures'. *Organizational Dynamics*, **24**, 1, 36–49.
- Bird, A., Taylor, S. and Beechler, S. (1999). 'Organizational learning in Japanese overseas affiliates'. In Beechler, S. and Bird, A. (Eds), *Japanese Multinationals Aboard: Individual and Organizational Learning*. New York: Oxford University Press, 235–59.
- Birkinshaw, J., Nobel, R. and Ridderstrale, J. (2002). 'Knowledge as a contingency variable – do the characteristics of knowledge predict organization structure'. *Organization Science*, **13**, 3, 274–89.
- Bjorkman, I. and Lu, Y. (1999). 'A corporate perspective on the management of human resources in China'. *Journal of World Business*, **34**, 1, 16–25.
- Blackler, F. (1995). 'Knowledge, knowledge work and organizations – an overview and interpretation'. *Organization Studies*, **16**, 6, 1021–46.
- Boland, R. and Tenkasi, R. (1995). 'Perspective making and perspective taking in communities of knowing'. *Organization Science*, **6**, 4, 350–72.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Brannen, M. Y., Liker, J. K. and Fruin, W. M. (1999). 'Recontextualization and factory-to-factory knowledge transfer from Japan to the United States'. In Liker, J., Fruin, W. and Adler, P. (Eds), *Remade in America: Transplanting and Transformation Japanese Management Systems*. New York: Oxford University Press, 117–53.
- Brown, J. S. and Duguid, P. (1991). 'Organizational learning and communities of practice – toward a unified view of working, learning, and innovation'. *Organization Science*, **2**, 1, 40–57.
- Brown, J. S., Collins, A. and Duguid, P. (1989). 'Situated cognition and the culture of learning'. *Educational Researcher*, **18**, 1, 32–42.
- Chan, A. (1997). 'Chinese danwei reforms: convergence with the Japanese model?'. In Lü, X. and Perry, E. J. (Eds), *Danwei: The Changing Chinese Workplace in Historical and Comparative Perspective*. Armonk, NY: M. E. Sharpe, 91–113.
- Child, J. and Czegledy, A. (1996). 'Managerial learning in the transformation of Eastern Europe – some key issues'. *Organization Studies*, **17**, 2, 167–79.
- Child, J. and Rodrigues, S. (1996). 'The role of social identity in the international transfer of knowledge through joint ventures'. In Clegg, S. and Palmer, G. (Eds), *The Politics of Management Knowledge*. London: Sage, 46–68.
- Ciborra, C. U. and Schneider, L. S. (1992). 'Transforming the routines and contexts of management, work and technology'. In Adler, P. (Ed.), *Technology and the Future of Work*. New York: Oxford University Press, 269–91.
- Clark, R. (1979). *The Japanese Company*. New Haven, CT: Yale University Press.
- Cohen, M. (1991). 'Individual learning and organizational routine – emerging connections'. *Organization Science*, **2**, 1, 135–9.
- Cohen, M. and Bacdayan, P. (1994). 'Organizational routines are stored as procedural memory – evidence from a laboratory study'. *Organization Science*, **5**, 554–68.
- Cohen, W. M. and Levinthal, D. A. (1990). 'Absorptive capacity – a new perspective on learning and innovation'. *Administrative Science Quarterly*, **35**, 128–52.
- Cook, S. and Brown, J. S. (1999). 'Bridging epistemologies – the generative dance between organizational knowledge and organizational knowing'. *Organization Science*, **10**, 4, 381–400.
- Cook, S. and Yanow, D. (1993). 'Culture and organizational learning'. *Journal of Management Enquiry*, **2**, 373–90.
- Crossan, M. M. and Guatto, T. (1996). 'Organizational learning research profile'. *Journal of Organizational Change Management*, **9**, 1, 107–12.

- Crossan, M. M., Lane, H. W. and White, R. E. (1999). 'An organizational learning framework – from intuition to institution'. *Academy of Management Review*, **24**, 3, 522–37.
- Cyert, R. and March, J. (1963). *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Darr, E. D., Argote, L. and Eppler, D. (1995). 'The acquisition, transfer and depreciation of knowledge in service organizations: productivity in franchises'. *Management Science*, **41**, 11, 1750–62.
- De Long, D. and Fahey, L. (2000). 'Diagnosing cultural barriers to knowledge management'. *Academy of Management Executive*, **14**, 4, 113–27.
- Dixon, N. (2000). *Common Knowledge*. Boston, MA: Harvard Business School Press.
- Dodgson, M. (1993). 'Organizational learning – a review of some literatures'. *Organization Studies*, **14**, 3, 375–94.
- Dyck, B., Starke, F. A., Mischke, M. and Mauws, M. (2005). 'Learning to build a car: an empirical investigation of organizational learning'. *Journal of Management Studies*, **42**, 2, 387–416.
- Easterby-Smith, M. (1997). 'Disciplines of organizational learning: contributions and critiques'. *Human Relations*, **50**, 9, 1085–113.
- Easterby-Smith, M. and Araujo, L. (1999). 'Organizational learning – current debates and opportunities'. In Easterby-Smith, M., Burgoyne, J. and Araujo, L. (Eds), *Organizational Learning and the Learning Organization: Developments in Theory and Practice*. London: Sage, 1–21.
- Easterby-Smith, M. and Lyles M. (2003). 'Introduction: watersheds of organizational learning and knowledge management'. In Easterby-Smith, M. and Lyles, M. (Eds), *The Blackwell Handbook of Organizational Learning and Knowledge Management*. Oxford: Blackwell, 1–15.
- Easterby-Smith, M. and Wu, X. (2000). 'Learning Within International Organizations – The Role of Power, Culture and Social Identity'. Paper presented to the Academy of Management Meeting, Toronto.
- Easterby-Smith, M., Crossan, M. and Nicolini, D. (2000). 'Organizational learning – debates past, present and future'. *Journal of Management Studies*, **37**, 6, 783–96.
- Edmondson, A. (2002). 'The local and variegated nature of learning in organizations – a group-level perspective'. *Organization Science*, **13**, 2, 128–46.
- Eisenhardt, K. M. (1989). 'Building theories from case study research'. *Academy of Management Review*, **14**, 4, 532–50.
- Eppler, M. and Sukowski, O. (2000). 'Managing team knowledge – core processes, tools and enabling factors'. *European Management Journal*, **18**, 3, 334–41.
- Feldman, M. (2000). 'Organizational routines as a source of continuous change'. *Organization Science*, **11**, 6, 611–29.
- Feldman, M. and Rafaeli, A. (2002). 'Organizational routines as sources of connections and understandings'. *Journal of Management Studies*, **39**, 3, 309–31.
- Fiol, C. M. and Lyles, M. A. (1985). 'Organizational learning'. *Academy of Management Review*, **10**, 4, 803–13.
- Fruin, W. M. (1992). *The Japanese Enterprise System*. Oxford: Oxford University Press.
- Fruin, W. M. (1997). *Knowledge Works: Managing Intellectual Capital at Toshiba*. New York: Oxford University Press.
- Fruin, W. M. (1999). 'Site-specific organizational learning in international technology transfer: example from Toshiba'. In Liker, J., Fruin, W. M. and Adler, P. (Eds), *Remade in America*. New York: Oxford University Press, 232–55.
- Gersick, C. J. and Hackman, J. R. (1990). 'Habitual routines in task-performing groups'. *Organizational Behavior and Human Decision Processes*, **47**, 65–97.
- Gherardi, S. and Nicolini, D. (2002). 'Learning in a constellation of interconnected practices: Canon or Dissonance?'. *Journal of Management Studies*, **39**, 4, 419–36.
- Gherardi, S., Nicolini, D. and Odella, F. (1998). 'Toward a social understanding of how people learn in organizations – the notion of situated curriculum'. *Management Learning*, **29**, 3, 273–97.
- Gioia, D. A. and Poole, P. P. (1984). 'Scripts in organizational behavior'. *Academy of Management Review*, **9**, 3, 449–59.
- Grant, R. (1996). 'Toward a knowledge-based theory of the firm'. *Strategic Management Journal*, **17**, Winter, 109–22.
- Gupta, A. K. and Govindarajan, V. (2000). 'Knowledge flows within multinational corporations'. *Strategic Management Journal*, **21**, 473–96.
- Hamel, G. (1991). 'Competition for competence and inter-partner learning within international strategic alliances'. *Strategic Management Journal*, **12**, 83–103.

- Hedlund, G. and Nonaka, I. (1993). 'Models of knowledge management in the west and Japan'. In Lorange, P., Chakravarthy, B. and Van de Ven, A. (Eds), *Implementing Strategic Process: Change Learning and Co-operation*. Oxford: Blackwell, 117–44.
- Huber, G. (1991). 'Organizational learning – the contributing process and the literature'. *Organization Science*, **2**, 1, 88–155.
- Hutchins, E. (1991). 'Organizing work by adaptation'. *Organization Science*, **2**, 1, 14–39.
- Imai, M. (1986) *Kaizen: The Key to Japan's Competitive Success*. New York: Random House.
- Inkpen, A. (1998). 'Learning and knowledge acquisition through international strategic alliances'. *Academy of Management Executive*, **12**, 4, 69–80.
- Inkpen, A. (2000). 'Learning through joint ventures: a framework of knowledge acquisition'. *Journal of Management Studies*, **37**, 7, 1019–43.
- Inkpen, A. and Dinur, A. (1998). 'Knowledge management processes and international joint-venture'. *Organization Science*, **9**, 4, 454–68.
- Jones, M. (1995). 'Organizational learning – collective mind or cognitivist metaphor'. *Accounting, Management and Information Technologies*, **5**, 1, 61–77.
- Kilduff, M., Funk, J. L. and Mehra, A. (1997). 'Engineering identity in a Japanese factory'. *Organization Science*, **8**, 6, 579–92.
- Knights, D. and McCabe, D. (2003). 'Governing through teamwork: reconstituting subjectivity in a call centre'. *Journal of Management Studies*, **40**, 7, 1587–619.
- Koike, K. (1994). 'Learning and incentive systems in Japanese industry'. In Aoki, M. and Dore, R. (Eds), *The Japanese Firm: Sources of Competitive Strength*. Oxford: Clarendon Press, 42–65.
- Lahteenmaki, S., Toivonen, J. and Mattila, M. (2001). 'Critical aspects of organizational learning research and proposals for its measurement'. *British Journal of Management*, **12**, 113–29.
- Lane, P. J. and Lubatkin, M. (1998). 'Relative absorptive capacity and interorganizational learning'. *Strategic Management Journal*, **19**, 5, 461–78.
- Lane, P. J., Salk, J. E. and Lyles, M. (2001). 'Absorptive capacity, learning and performance in international joint venture'. *Strategic Management Journal*, **22**, 12, 1139–61.
- Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Levitt, B. and March, J. (1988). 'Organizational learning'. *Annual Review of Sociology*, **14**, 319–40.
- Liu, S. and Vince, R. (1999). 'The cultural context of learning in international joint ventures'. *Journal of Management Development*, **18**, 8, 666–75.
- Louis, M. R. (1983). 'Organizations as culture-bearing milieux'. In Pondy, L., Frost, P., Morgan, G. and Dandridge, T. (Eds), *Organizational Symbolism*. Greenwich, CT: JAI Press, 39–54.
- Mason, J. (1996). *Qualitative Reasoning*. London: Sage.
- Miller, D. (1996). 'A preliminary typology of organizational learning – synthesizing the literature'. *Journal of Management*, **22**, 3, 485–505.
- Nicolini, D. and Meznar, M. B. (1995). 'The social construction of organizational learning – conceptual and practical issues in the field'. *Human Relations*, **48**, 7, 727–46.
- Nonaka, I. (1990). 'Redundant, overlapping organization: a Japanese approach to managing the innovation process'. *California Management Review*, **1**, 27–38.
- Nonaka, I. and Takeuchi, K. (1995). *The Knowledge Creating Company*. New York: Oxford University Press.
- Orr, J. (1990). 'Sharing knowledge, celebrating identity: community memory in a service culture'. In Middleton, D. and Edwards, D. (Eds), *Collective Remembering*. London: Sage, 169–89.
- Orr, J. (1996). *Talking About Machines: An Ethnography of a Modern Job*. Ithaca, NY: Cornell University Press.
- Pentland, B. (1995). 'Information systems and organizational learning: the social epistemology of organizational knowledge systems'. *Accounting, Management and Information Technologies*, **5**, 1, 1–21.
- Pentland, B. and Rueter, H. (1994). 'Organizational routines as grammars of action'. *Administrative Science Quarterly*, **39**, 484–510.
- Polanyi, M. (1966). *The Tacit Dimension*. New York: Anchor Books.
- Purvis, R. L., Sambamurthy, V. and Zmud, R. (2001). 'The assimilation of knowledge platforms in organizations: an empirical investigation'. *Organization Science*, **12**, 2, 117–35.
- Ralston, D. A., Egri, C. P., Stewart, S., Terpstra, R. H. and Yu, K. (1999). 'Doing business in the 21st century with the new generation of Chinese managers: a study of generational shifts in work values in China'. *Journal of International Business Studies*, **30**, 2, 415–28.

- Sackman, S. (1992). 'Culture and subculture: an analysis of organizational knowledge'. *Administrative Science Quarterly*, **37**, 140–61.
- Simon, L. and Davies, G. (1996). 'A contextual approach to management learning: the Hungarian case'. *Organization Studies*, **17**, 2, 269–89.
- Smircich, L. (1983). 'Organizations as shared meanings'. In Pondy, L., Frost, P., Morgan, G. and Dandridge, T. (Eds), *Organizational Symbolism*. Greenwich, CT: JAI Press, 55–65.
- Sole, D. and Edmondson, A. (2001). 'Situated Knowledge and Learning in Dispersed Teams'. Paper presented at the 4th International Conference on Organizational Learning, Richard Ivey School of Business, University of Western Ontario, Canada.
- Spender, J. C. (1996). 'Making knowledge the basis of a dynamic theory of the firm'. *Strategic Management Journal*, **17**, Winter, 45–62.
- Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.
- Strauss, A. L. and Corbin, J. (1990). *Basics of Qualitative Research*. Newbury Park, CA: Sage.
- Suchman, L. (1987). *Plans and Situated Actions*. Cambridge: Cambridge University Press.
- Sullivan, J. J. and Nonaka, I. (1986). 'The application of organizational learning theory to Japanese and American management'. *Journal of International Business Studies*, Fall, 127–47.
- Sung, Y. W., Liu, P. W., Wong, R. Y. and Lau, P. K. (1995). *The Fifth Dragon: The Emergence of the Pearl River Delta*. Singapore: Addison-Wesley.
- Szulanski, G. (1996). 'Exploring internal stickiness: impediments to the transfer of best practice within the firm'. *Strategic Management Journal*, **17**, Winter, 27–43.
- Szulanski, G. (2000). 'The process of knowledge transfer: a diachronic analysis of stickiness'. *Organizational Behavior and Human Decision Process*, **82**, 1, 9–27.
- Taylor, B. (1999). 'Patterns of control within Japanese manufacturing plants in China: doubts about Japanization in Asia'. *Journal of Management Studies*, **36**, 853–73.
- Tyre, M. J. and Von Hippel, E. (1997). 'The situated nature of adaptive learning in organizations'. *Organization Science*, **8**, 1, 71–83.
- Van den Bosch, F. A. J., Wijk, V. R. and Volberda, H. W. (2003). 'Absorptive capacity: antecedents, models and outcomes'. In Easterby-Smith, M. and Lyles, M. (Eds), *Handbook of Organizational Learning and Knowledge Management*. Oxford: Blackwell, 278–301.
- Von Hippel, E. (1994). 'Sticky information and the locus of problem solving – implications for innovation'. *Management Science*, **40**, 4, 429–39.
- Walsh, J. and Ungson, G. (1991). 'Organizational memory'. *Academy of Management Review*, **16**, 1, 57–91.
- Weick, K. E. and Roberts, K. H. (1993). 'Collective mind in organizations: heedful interrelating on flight decks'. *Administrative Science Quarterly*, **38**, 357–81.
- Weick, K. E. and Westley, F. (1996). 'Organizational learning: affirming an oxymoron'. In Clegg, S. R., Hardy, C. and Nord, W. (Eds), *Handbook of Organization Studies*. London: Sage, 440–58.
- Weisinger, J. Y. and Salipante, P. F. (2000). 'Cultural knowing as practicing'. *Journal of Management Inquiry*, **9**, 4, 376–90.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity*. Cambridge: Cambridge University Press.
- Wenger, E. (2000). 'Communities of practice and social learning systems'. *Organization*, **7**, 2, 225–46.
- Womack, J. P., Jones, D. T. and Roos, D. (1990). *The Machine that Changed the World*. New York: Harper Collins.
- Yin, R. K. (1994). *Case Study Research: Design and Methods*. London: Sage.
- Zander, U. and Kogut, B. (1995). 'Knowledge and the speed of the transfer and imitation of organizational capability: an empirical test'. *Organization Science*, **6**, 1, 76–92.