Chapter 2
Organizational Learning as a Continuous Process, DELO

Kris M.Y. Law and Kong Bieng Chuah

Abstract Current literature on OL has different focuses, e.g. learning motivation; collective or team learning; learning process or system; learning culture; knowledge management; organizational development; and continuous improvement. Different perspectives are used to study OL by researchers from different disciplines. It can be said that there is no single framework for the study of OL. To have a better understanding of OL, it is thus critical to explore how an organization may be transitioned into an LO and how its OL process is initiated, driven, enabled, facilitated and measured. This chapter introduces OL as a continuous process called DELO (driving, enabling, learning and outcome). Each of the core components along the DELO process is discussed in detail.

2.1 Organizational Learning

Current literature on OL has different focuses, e.g. learning motivation; collective or team learning; learning process or system; learning culture; knowledge management; organizational development; and continuous improvement (Wang and Ahmed 2003). In this section, different focuses and perspectives of OL in the existing literature are presented, and OL is described as a continuous evolutionary process (as shown in Fig. 2.1).

OL can be defined from both knowledge-level or learning-level perspectives, some questions to be answered.

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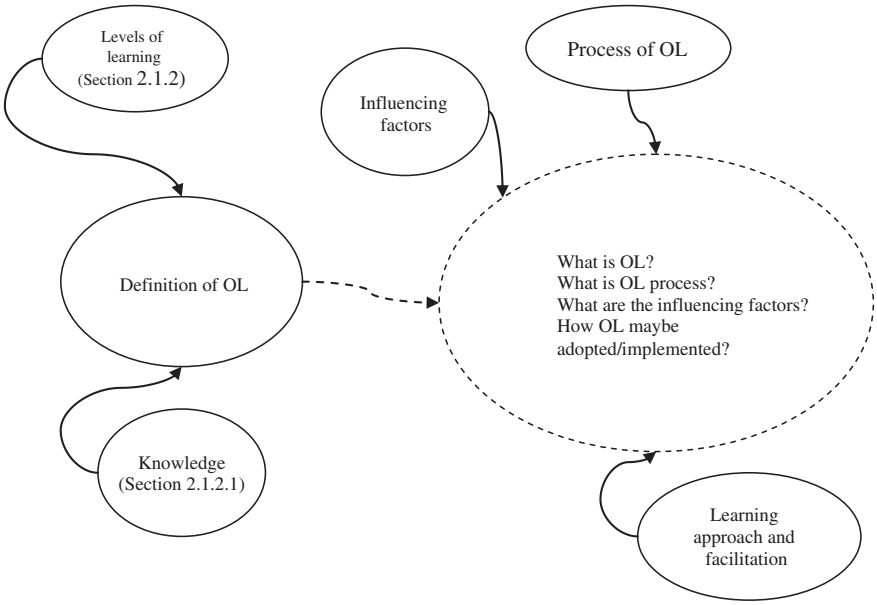

Fig. 2.1 The body of knowledge in OL

2.1.1 Perspectives of Organizational Learning

During the last two decades, much about OL has been studied and written, on subjects such as system dynamics (Senge 1990), action-based learning (Argyris and Schon 1996; Smith and O'Neil 2003), group process, personal creative process, and collective decision and action (Issac 1993).

Some researchers believed that OL is a natural tendency of an organization fighting to survive (Levitt and March 1988; Kim 1993; Miller 1996). Other thought that it is not only a form of learning or just a prescribed set of processes in the theory of levels of learning in organizations, but also rather a philosophy of organizational development (Watkins and Golembieski 1995; Argyris and Schon 1996). Over the years, some theories of OL became conceptually more complex and others more specialized. Like Senge, who considers OL from a system perspective, Nonaka (1994) focuses on the interchange of knowledge in organizations. On the other hand, some authors prescribe OL as existing processes involving activities and means that organizations use to organize knowledge with the expectation of a higher level of its usage that lead to greater competitiveness (Fulmer et al. 1998; Pemberton et al. 2001). For these authors, OL is a process by which individuals accumulate and extend knowledge based on their past experiences and their perceptions, and share and propagate it in ways that help an organization to develop (Roth and Kleiner 1995, 1998; Lynn et al. 1998; Garratt 1999; Atul and Glen 2001; Ortenblad 2001).

There is a wide range of beliefs of thinking about what OL is, how it occurs, and how it is applied and how it influences organization development. There is no

overarching framework, which cohesively pulls together all theoretical advances into a unified theory (Darnell 2004). A multidisciplinary approach advocated by Dodgson may still the desired way to study the complexity of OL (Dodgson 1993).

2.1.2 Learning at Different Levels

Some OL theories treat OL as a conscious organizational-goal-driven process, with individuals as the learning agents for the organization (Argyris and Schon 1996; Ortenblad 2002, 2004). These emphases of learning at different levels within an organization, however, contribute to the elusiveness of the definition of OL (Weick 1991).

The paradox of OL is that it is not merely the sum of individual learning (Argyris and Schon 1978), but the learning at different levels within an organization directed towards some preset organizational goal (Lipshitz et al. 2002). Distinct approaches to OL, which include behavioural learning and cognitive learning, have been discussed (Fiol and Lyles 1985; Yeo 2002). Cognitive development is the organizational change that affects the interpretation of events and the shared understanding among organizational members (Daft and Huber 1987; Daft et al. 1988; Daft and Weick 1984; Simon 1991). Conversely, behavioural development is the new response or action based on the existing interpretations. Argyris and Schon embraced these into their learning theories (1978) as single-loop learning and the higher level cognitive 'double-loop' learning.

Early research demonstrated a strong emphasis on the role of individual learning in OL. Argyris and Schon's (1978) 'double-loop' learning concept focuses on the learning-action role of individuals who are interpreting their experiences without addressing the group or cultural dimensions. This 'double-loop' learning extends single-loop learning by questioning and modifying underlying concepts. Besides, emphasis was also placed on the human process of 'action learning', i.e. through experience via various feedback mechanisms interacting with each individual's sets of beliefs (Calveri and Fearson 2000; Smith and O'Neil 2003; Forman 2004). Such learning, then, requires action and feedback, as well as a mindset to change existing beliefs, to apply new insights to improve the organization.

Senge (1990) termed the higher levels of learning as generative learning. He stated the five disciplines as the core principles for individuals involved in OL: '(*individual learning*) should prepare the individuals for being part of the group (*personal mastery*) …and to prepare receptivity to others' learning, experience, questions, and manner of thought (*mental models*). A viewpoint that is sufficient for understanding business cycles and system relationships is required … (*systems thinking*). …guiding purpose and shared values (*shared vision*)'.

Individuals are the learning agents of collective learning for learning to occur at the organizational level (Mumford 1992; Easterby-Smith 1997). Team learning is the central issue of concern in OL. The insights and innovative ideas occur to individuals. However, knowledge generated by the individual does not come to bear on the organization independently. Effective OL requires that ideas are shared and actions taken, with common meanings developed within the organization (Argyris and

Schon 1978, 1996; Daft and Weick 1984; Huber 1991; Delaney and Huselid 1996). Today, it is generally accepted that OL is multi-levelled (Giesecke and McNeil 2004).

Deutero-learning is an even higher level of learning, which involves both the single-loop and double-loop learning (Argyris and Schon 1978). Organizations are then more than ad hoc collections of individuals with structured relationships; individual learning and learning in groups become institutionalized as organization artefacts (Hedberg 1981; Shrivastava 1983). 'Members learn about previous contexts for learning. They reflect on and inquire into previous episodes of OL, or failure to learn….they discover…., they invent…., they produce….and they evaluate and generalize….'. Therefore, OL needs to consider the individual, team and learning at different organizational levels (Crossan et al. 1995, 1999).

Companies should pay great attention to issues of team performance (Mintzberg 1983; Matlay 2000; MacBryde and Mendill 2003). Team performance is emphasized as teams are the 'building blocks' in an organization, and improvement tasks or major functions are generally carried out projects assigned to different teams rather than individuals (Poell and Van der Krogt 2003). Under such 'inherent' conditions, systematizing learning in a project team makes sense (Roth and Senge 1996). With major tasks assigned as projects and project teams as the building blocks of organization, working in projects creates mutual interdependence and interconnection. Team based and project driven are the keys to effective OL in this thesis.

2.1.2.1 Knowledge Perspective

OL encourages anticipatory learning (Giesecke and McNeil 2004). As we have seen earlier, shared visions and systems thinking are two of the emphases of OL. Individuals acquire new knowledge and incorporate it into the workplace so that the collective set can reach its shared visions. In addition to shared visions, it was clearly expounded in Senge's five disciplines: systems thinking is the integration of individual learning and team learning towards the organization-wide collective sense of purpose (Senge 1990).

Sets of processes for knowledge creation and models for establishing processes to spur new knowledge were introduced (Nonaka and Takeuchi 1995; Allee 1997; Narasimha 2000; Maier and Remus 2003). It is inevitable that knowledge is a critical part in the OL context; attention should be paid to who learns what and where the knowledge is rooted (Leymann and Kornbluh 1989; Burgoyne 1999; Bierly et al. 2000; Bollinger and Smith 2001).

There have been debates about the entities of learning and location of knowledge (Argyris and Schon 1978; Cook and Yanow 1993). According to Dogsdon (1993), these knowledge-related issues involve the means the organization uses to disseminate information throughout its ranks and the ways that the information is processed and stored. This is what recent researchers have stressed: knowledge management.

Different approaches of knowledge management (from mechanistic, systematic to behaviouristic) are plentiful in the OL literature. The mechanistic approach concerns the technical and technological issues of knowledge accumulation, storage. Systematic approach focuses on the rational analytical

problem-solving processes, while the behaviouristic approach emphasizes on the change of mindset, the improvement of innovation and creativity (Arygris and Schon 1978). The behavioristic approach in knowledge management is often said to have its roots in process re-engineering and change management. It tends to view 'knowledge management' as a management issue rather than as a technology issue.

As the environment becomes more and more information intensive, an organization may become relatively dysfunctional to its business objectives. The traditional methods that were used to solve the 'knowledge problem' have reached their limits of effectiveness. Technology on its own is not the solution to knowledge management of a present-day LO (Nonaka 1994; Hitt et al. 2000).

Nonaka and Takeuchi (1996) proposed a spiral of knowledge creation that covers the four modes of knowledge conversion (socialization, externalization, internalization and combination) and knowledge sharing among the three levels (individual, team and organization). Furthermore, exploration and exploitation of knowledge have also been studied. Exploration is about the use of experimentation and innovation to seek new ideas for application, whereas exploitation is the effective use of current know-how and new idea of incorporating efficient improvement and refinement into a business (March 1991; Roth and Kleiner 1998; Lynn et al. 1998).

The above knowledge-related studies are not explicitly related to the concept of OL, but they shed lights on how the knowledge-related learning process is contributing to OL.

2.2 OL as a Continuous Process

A distinction is noted in the OL literature on the tendency of researchers to focus either on the 'process' or on the 'content' of learning. The theories thus developed either describe what learning is or how learning takes place.

For instance, Senge (1990) and Garvin (1993) specify a set of prescriptive conditions for learning organizations, while other 'process-focusing' theories describe the processes and concepts of OL (Pedler et al. 1991, 1998). These process-focusing theories include the theories of Kimberly and Miles (1980), and Cook and Yanow (1993) on learning from action and acquisition. There is rarely an integrated treatment of OL as an ongoing process constituted by different learning patterns and styles.

DiBellaet al (1996) proposed that learning is an 'innate, ongoing process' in organizations. All organizations have learning capabilities that 'embody' distinctive styles or patterns of learning (Nevis et al. 1995). This learning 'capability' perspective emphasizes the dynamic nature of OL. We regard this as the foundation of this study and consider OL to be an ongoing process in organizations.

Different perspectives are used to study OL by researchers from different disciplines. It can be said that there is no single framework for the study of OL. Though there are several researches that consider OL as an ongoing process, empirical research on OL is still limited.

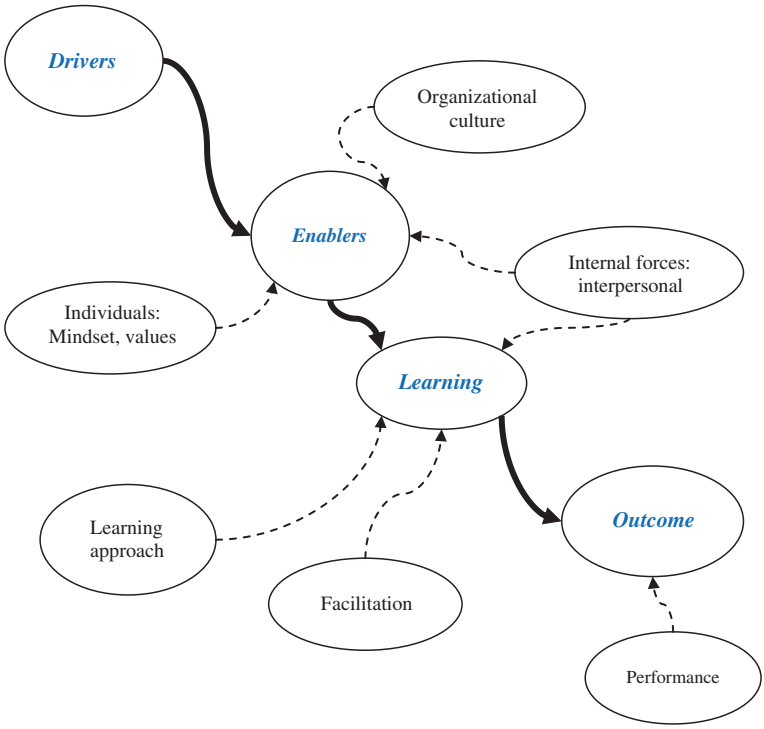

Fig. 2.2 The process of organizational learning and corresponding 'influencers'

It is thus useful for us to treat OL as not just the physical process of learning, acquiring and sharing knowledge, nor just a specific part of organizational change, but also how attitudes and mindsets are changed to complement organizational development (Smith 1999). To have a better understanding of OL, it is thus critical to explore how an organization may be transitioned into an LO and how its OL process is initiated, driven, enabled, facilitated and measured.

OL as a continuous process consists of four core components—drivers (D), enablers (E), learning (L) and outcome (O) (Fig. 2.2). Drivers are the driving forces of starting up OL within a company. The attributes contributing to this block include vision, mission and leadership. The enablers are the 'influencers' of the subsequent OL process.

There is no clear and widely accepted depiction of the linkage between OL and its enabling factors. Such a comprehensive concept covering so many aspects is difficult to achieve. In this book, factors influencing the OL process are the focus.

In the last two decades, many studies have been conducted to identify the influencing factors of OL process and effectiveness. Management strategies and leadership styles are found crucial to OL, from which organizational changes and

development are expected. Among the many OL influencing factors, individual and interpersonal factors may be of the most important for some organizations in certain operational environments. LO and OL are now beginning to be embraced by a small number of enterprises. The cause-and-effect relationship among individual factors, interpersonal factors, management practice, leadership styles and business benefits is not clear during these early days of OL adoption. Positive results achieved by behavioristic strategies elsewhere may not be applicable here. Even if they are applicable, the 'effect' may not be sustainable and measurable. It is thus of the need to explore more how OL is affected by the situational factors, such as cultural issues and organizational structure. The influence of these factors on the collective mindset and project team learning will be crucial to the OL process.

Cultural factor is one of the key factors in the OL process that may make China's LOs different from the Western countries. Hofstede's studies (Hofstede 1991) have shown that the Chinese culture is collectivistic rather than individualistic and the traditional 'Paternistic' management style still prevails. This may hinder the development of innovation and knowledge creation of individuals. As individual value, one of the likely key influencers of OL, is closely related to culture, it will be of interest to find out how strongly these culture-related factors influence the LO and OL implementation.

2.2.1 Drivers

As technology advances at a relentless pace, companies in the high-tech manufacturing industry have been consistent to make sure they are prepared for the changes to remain competitive. Competence development becomes a strategic issue for such companies (Lee et al. 2000). OL has been propounded to help companies to adapt to change.

To initiate OL, the need and desire of the organizations to advance and the will of management have been described as the critical drivers (Smith 1993). This will of management can be in the form of a facilitative leadership with strategic thinking and vision, which is crucial in the process of transformation into a learning organization (Phillips 2003).

The importance of the role of leadership in OL has also been widely recognized. Researchers have identified the various roles of a leader in learning organizations (Nonaka 1996; Vera and Crossan 2004). Among these roles, the leader has a designer role that involves creating a foundation of purpose and core values within the organization. The importance of strong leaders to build shared visions and the facilitating processes has been recognized (Limerick et al. 1994; Teare 1997). To summarize, a strong leader committed to building a shared vision, empowering and inspiring people are needed to drive in the process of OL.

2.2.2 Enablers

2.2.2.1 Organizational Culture

In the scope of organizational studies, culture in organizations is one such factor that has received much attention (Chatman and Jehn 1994; Chatman and Barsade 1995; Hofstede et al. 1990; Marcoulides and Heck 1993; Trice and Beyer 1984; Pool 2000). Organizational culture is commonly defined as the pattern of shared assumptions, values and beliefs (Enz 1988; Schein 1984; Deshpandé and Webster 1989), or the dynamic and active entity with shared understanding and sense (Hofstede 1984, 1990; Schein 1984; Morgan 1986; Deshpandé and Webster 1989; Slater and Narver 1995). The elements of organizational culture include values, norms, symbols, rituals and other cultural activities which revolve around them (Enz 1988; Rousseau 1990). Much of the research has attempted to discern these elements characterizing a given culture (Trice and Beyer 1984; Schein 1996; Schneider 1987; Wooldridge and Minsky 2002; Harrison and Carroll 2006).

Culture is a complex matter, and it is even more complex, pluralistic and diverse, contradictory or inherently 'paradoxical' in organizational settings (Sackmann 1997; Browaeys and Baets 2003). Its effective grasp assists the organization in dealing with management problems and is even a tool to deal with organizational problems related to strategy, employees and communication (Browaeys and Baets 2003).

Organizational culture thus has been an important area in the study of organizational behaviour and organizational learning (O'Reilly 1989; O'Reilly et al. 1991). Literature linking organizational culture and organizational learning includes Fiol and Lyles' (1985) work on contextual factors and Cook and Yanow (1993) cultural approach to learning that incorporates the concept of tacit knowledge.

The study of how culture affects modern organizations has been going on for decades (e.g. Trice and Beyer 1984; Wilkins and Ouchi 1983; Chatman and Barsade 1995). Traditional organizational models did not always help to understand disparities between goals and outcomes, as well as between strategy and implementation (Fang and Wang 2006). Research on organizational culture showed the necessity of taking into account cultural references when tackling management problems (Wilkins and Ouchi 1983) and using a cultural approach to reach genuinely new insights within organizations (Trice and Beyer 1984).

Recent researches about organizational culture and effectiveness proved that the driving forces of culture affect the performance (Wilkins and Ouchi 1983; Wooldridge and Minsky 2002; Quinn and Rohrbaugh 1983). Innovation, which has proven to be culture related, is also found improving performance (Deshpande et al. 1993). An organization possesses a 'strong' culture will perform at a higher level of productivity (Denison 1984, 1996). Such efforts will be rewarding, particularly because of the variables that comprise culture have been postulated to be under the control of organizational leaders (Deal and Kennedy 1982; Ouchi 1979).

Not only the internal environment, features present in external environment also affect the culture of an organization, namely national culture and industry characteristics.

Specific organizational values and outcomes vary across national cultures (Hofstede 1983, 1994), while the national culture is manifested through a common notion of a shared mentality (Laurent 1986; Rhody and Tang 1995). The impact of national culture pertains to the phenomenon of organizational acculturation which alludes to cultural changes (Selmer and de Leon 1996, 2002).

The values that characterize firms vary across industries. Firms in the same industry tend to share similar technology and be with less variation in their cultures (Deal and Kennedy 1982). Research has proved that technology and industry growth closely relate to the culture within organizations (Dess and Beard 1984; Quinn and Rohrbaugh 1983; Chatman and Jehn 1994; Zammuto and O'Connor 1992), business nature and the outcomes (Van de Ven and Delbecq 1974), and technological development (Dewar and Hage 1978). While the technology development fosters growth (Thomson 1967; Zammuto and O'Connor 1992), firms characterized by intensive technologies are found to have high levels of innovation (Pennings and Harianto 1992), emphasis on team-oriented (Saxenian 1990) and a high level of job structure (Hofstede et al. 1990).

Process-oriented and Result-oriented Culture and Learning Organizations

For organizational culture, Hofstede defined six cultural dimensions, namely process and result oriented, open and closed system, job and employee oriented, parochial and professional, loosely and tightly controlled, and normative and pragmatic. In this research, we will focus on process-oriented and result-oriented dimension. According to Hofstede (1990), the definitions of the two cultural items in this dimension are:

- Process oriented stating that people perceive themselves as avoiding risks and spending limited effort in their jobs
- Result oriented stating that people perceive themselves as comfortable in unfamiliar situations and maximal efforts

This dimension opposed a concern with *means* to a concern with *goals*. Three key features were identified by Hofstede (1980). These factors show that people in the process-oriented cultures perceived themselves as avoiding risks and spending only limited efforts in their jobs, and they saw each day as pretty much the same. In the result-oriented culture, people perceived themselves as comfortable in unfamiliar situations and as putting in maximal effort and felt each day brought new challenges.

Meanwhile, the process-oriented epistemology is widely used as the knowledge management perspective (Christensen and Bang 2003; Maier and Remus 2002). The process-oriented epistemology considers knowledge creation and sharing as a continuous process between people. It is also a technology as well as tacit and explicit knowledge. Companies adopting process-oriented epistemology focusing on human relations, and by the fact that learning is taking place and knowledge is collected through process reports and quality control systems. By sharing knowledge, the company tries to internalize knowledge. As a result, the value of the knowledge is increased, and this is one of the organizational learning ideals.

Yet, there is lack of study on the relationship between process-oriented practice and learning, and there is, thus, a necessity to study if the process-oriented practice does influence the learning within an organization.

The purpose here is not to delineate the cultural dimensions that may affect the OL process, but to acknowledge that specific cultural dimensions may be pertaining to the context of learning in organizations.

2.2.2.2 Individuals

Researchers agree that organizational culture and individual are correlated (Schein 1984, 1986). Individual's mindset that interacts with facets of situations within an organization is crucial to the learning (Gabriel and Griffiths 2002). Aspects of individuals, such as values and beliefs, interact with facets of situations to affect the individual's attitudinal and behavioural responses (Davis-Blake and Pfeffer 989; Naquin and Holton 2002). A key issue in the literature on OL is the permeability between individual and OL, that is to what extent the characteristics and processes by which individuals be extended to OL.

The Linkage Between Individual and Organizational Learning

Argyris and Schon (1978) noted the paradoxical nature that OL is not merely the collection of individual learning, but is more than the cumulative sum of individual learners (Hedberg 1981; Cohen 1991).

In recent years, human resources professionals have been focusing on ways which promote learning in organizations (Jacobs 1995; Marsick and Gephart 2003). It has been theorized that systematic approaches to learning in organizations are tied to corporate performance and are therefore of value. Additional insight into the potential impacts of the environments of employees is crucial for learning and developmental practice (Egan et al. 2004). Employee attitudes have been found to interact with environmental factors that influence job values (Mobley 1977), and thus motivation to learning.

Motivation and Learning in Organization

The importance of motivation to knowledge transfer and OL has been advocated by researchers (Naquin and Holton 2002; Egan et al. 2004). Motivation in learning is described as the desire to use the knowledge and skills mastered in associated learning activities from the job (Noe and Schmitt 1986). It constitutes a central force when going through process of organizational activities (Osteraker 1999).

Therefore, the aim of every LO is to explore the factors that enable and motivate employees to learn. Motivational theories, such as motives and needs (Alderfer 1972; Maslow 1954, 1970; McClelland 1967), expectancy theory (Vroom 1964), Adam's equity theory (1963, 1965), cognitive theory (Deci 1980), reinforcement theory (Skinner 1969) and goal setting theory (Wofford et al. 1992) have been

widely studied. Most researchers believe that both intrinsic and extrinsic job factors have effects on job satisfaction, work involvement and work motivation. Later research on motivation examined the continuing relevance of these theories.

Recent research primarily focused on the need for achievement, which interacts with other variables to influence performance, and examined its relationship with work behaviour (Hofstede et al. 1990). Meanwhile, cognitive ability is found to moderate the relationship between need for achievement and performance (Wright et al. 1995).

Expectancy theory (Vroom 1964) suggests that motivation is a multiplicative function of three constructs: expectancy, instrumentality and valence. Rasch and Tosi (1992) carried out performance studies by integrating elements within expectancy theory, goal setting and the need for achievement.

Equity (Adams 1963, 1965, cited from Ambrose and Kulik 1999) was primarily proposed as a way of understanding how employees respond to situations in which they are treated more or less favourably in comparison with a referent 'other'. Weick (1969, 1974, 1979) described it as one of the most useful organizational behaviour theories, and several reviews concluded that the evidence for equity theory was generally strong. However, critics have described equity theory as one of the 'not so useful' theories among the organizational behaviour theories (Miner 2005).

Reinforcement theory and cognitive evaluation theory have also been two of the key theories within the mainstream of motivation field. Reinforcement theory emphasizes the relationship between behaviour and its consequences (Skinner 1969). Cognitive evaluation theory suggests two motivational subsystems: extrinsic subsystem and intrinsic subsystem (Deci 1980), in which situational variables and impacts from external sources could significantly affect the cognition and hence the motivation of an individual.

Self-efficacy and Personal Goals

Self-efficacy and personal goals are important in determining performance. The positive relationship between efficacy and performance has been addressed (Durham et al. 1997; Prussia and Kinicki 1996). Research focused on several important issues related to the theory of goal setting was carried out in the 1990s. This includes the study of goal difficulty–performance relationship, goal commitment in goal setting (Wofford et al. 1992), personal goals and self-efficacy and effectiveness of goal setting. Self-efficacy generally refers to what a person believes he or she can do in a particular task. Wofford's study examined the role of self-efficacy in the goal setting process, and self-efficacy has been proven to correlate with the intrinsic motivation and commitment to goal attainment (Wofford et al. 1992). People with high-level self-efficacy are likely to set high goals and to perform well (Locke and Latham 1990). Self-set goals are often more desirable than assigned goals because they automatically engender higher level commitment (Hinsz et al. 1997). Klein and Mulvey (1995) further suggested that cohesiveness within teams also positively relates to goal commitment.

There is still no available study, which has explicitly explained the interplay between individual aspects and organizational learning process. These aspects are of individual values and motivation in learning. Thus, one of my objectives of this

study is to probe more closely individual values (job) and motivation as two of the enabling factors of organizational learning.

2.2.2.3 Internal Forces

Configuration of effective organizations can be captured by the interplay of the basic forces in an organization. These basic forces are the system of seven forces introduced by Mintzberg (1991) as the building blocks of an effective organization. Jashapara (2003) further adapted the system of forces for the study on the learning focus of a competitive learning organization. The learning focus proposed by Jashapara is based on Mintzberg's system of seven forces. The outer five 'pillars' of the system are direction, efficiency, proficiency, innovation and concentration, while the two internal catalytic forces are cooperation and competition.

Among the five 'pillar' forces, the force for direction and force for innovation are appropriate to describe action team learning within an LO. The force for direction is concerned with strategic vision and may relate to the start-up or turnaround situations. This gives a team a common goal. Meanwhile, the force for innovation is concerned with discovering new things and may relate to adhocracies comprised of skilled experts or multidisciplinary projects (Mintzberg 1991; Jashapara 2003). The concept of forces for direction and innovation conforms to the emphases on goal-driven learning and the learning emphasizing on exploration.

Internal forces of competition and cooperation also have an effect on organizational learning (Jashapara 2003). According to Mintzberg (1991), the two catalytic forces of cooperation and competition are described as the pulling together of ideology and pulling apart of politics, respectively. Dominant forces of cooperation may result in an ideological organization, while the force of competition relates to political organizations where conflicting factors exist.

Internal forces from the literature are proven crucial to the 'organizational-goal-driven' organizational learning process. We intend to further explore how these internal forces interact with the OL process.

2.2.3 Learning

2.2.3.1 Team Learning in Learning Organizations

The concept of OL and LO has been accepted by organizations keen on developing and creating an environment to support learning, especially the high-tech manufacturing organizations (Lynn et al. 1998). Such organizations usually adopt project team or hybrid-project-team structure. The project-based structure is adopted by the whole company or specifically applied to certain units or the groups within the organization. In these organizations, team concept and team performance are highly valued and relied upon.

Not surprisingly, team learning has been proved to be gaining importance as an OL strategy (Osterman 1994; Chan et al. 2003). It has been well documented

(Kotnour 2000, Poell and Van de Krogt 2003) and extensively studied (Cavaluzzo1996; Flood et al. 2001; Katzenbach and Smith 1993; Meyer 1994; Roberts 1997; Senge 1990; and Teare et al. 2002).

Senge (1990) explained that organization/team performance improvement is a result of collective intelligence of an organization/team, which exceeds the sum of intelligence of individuals. Knowledge gained by teams has been associated with realizable benefits in the form of improved performance (Wellins et al. 1991; and Meyer 1994). This aligns well with the OL ideals and is similar to the core group theory, which explains how the power, knowledge and influence of core groups interact with organization opportunities to gain learning and creativity for the groups concerned (Kleiner 2003).

2.2.3.2 Learning as Part of Work

Learning organizations aim to transform old behaviours and patterns of thinking and improve skill and know-how to adapt to the challenging dynamic environment. Learning, thus, involves the linking up of knowledge/know-how systems, structures and processes. It has been found that employees are willing to learn more systematically and intensively, if learning becomes a required part of their everyday work (Teare et al. 2002).

As noted the previous discussion of learning at different levels (Sect. 2.3.2) within an organization, it is clear that much of an organization's knowledge resides in its people and much of the learning is socially constructed and specific in context.

Knowledge is interpreted, aggregated and shared at the organizational level through the interactions of members in the organization (West and Dale Meyer 1997). This knowledge is embedded in the routines and practices through the repeated rounds of experiences by individual members. This aligns with the concept advocated by action learning.

2.2.3.3 Action Learning and OL

Action learning has been proposed as one of the effective approaches to organizational development (Clarke et al. 2006) and a problem-solving approach for organizations facing complex problems (Loo 2006). It was first elaborated by Revans (1971) as a type of learning that comes from concrete problem-solving experience and critical reflection within a social environment, by encompassing a wide variety of management learning methods and activities of action and reflection with proper facilitation (McGill and Beaty 1995; Weinstein 1999).

Learning does not take place solely within groups in an organization (Lee et al. 2000). Emphasizing the importance of the empowerment of individuals to take action, action learning therefore fosters OL by allowing effective learning to take place within organizations at both individual and organizational levels (Revans 1982, 1998; Garvin 1994).

In this way, we believe the goal-driven action learning through project teams can be applied as the learning approach in an organization gearing itself to becoming an LO. This further forms the foundation of the project-based learning framework put forward in this thesis.

2.2.4 Outcome

Within an organization, effective teams normally are those that have clear, worthwhile, and challenging missions to which all members are committed. Teams should always be purpose driven, and autonomous teams have higher level of motivation and commitment (Cordery et al. 1991; Houghton et al. 2003.

Thus, it is with a well-defined purpose that a team can demonstrate commitment and synergy. Many authors have suggested a variety of anecdotal recipes for creating successful teams; however, organizational barriers exist, and inappropriate performance management is one of these barriers. The reason is twofold.

Firstly, most rewards and compensation systems focus on individuals, not on team performance. This may lead to the destructive or dysfunctional competitions among individuals, and less synergistic teamwork. Secondly, most of the performance appraisal systems do not even consider team issues, while the rewards and compensation systems foster internal competition, thereby limiting the team's effectiveness and performance (Meyer 1994; Zigon 1997; Bourne et al. 2002; Yeo 2003).

2.2.4.1 Performance Measurement of Learning Teams

We believe that team learning can be the core part within an OL process. Team concept and team performance are highly valued in LOs. Performance measurement of learning teams is, thus, critically important to an OL process that adopts and expects team learning (Ruigrok and Wagner 2003). Regarding this, performance measurement is an essential part of the OL process (Tosey and Smith 1999a, b) to truly reflect the effectiveness of the team learning.

The introduction of OL thus leads to the question in many OL advocators' minds—how can the various performance outcomes associated with learning be measured? In the absence of practical and well-founded team performance measurement approaches for team learning within organization, many companies have adopted the existing performance measurement tools, which are mainly developed for business or individual performance instead of for team learning and team performance. These measurement tools often fail to measure what the teams have learned and how they are performing.

Furthermore, there are no means of measuring team learning readily available, especially for project-based team learning. There is an apparent failure of linkage between team strategies and performance criteria (Zigon 1997; Bourne et al. 2002) and a seeming incompatibility between traditional structures and newly developed processes/approaches. Integrated performance measurement systems have been developed for measuring organizational performance (Leitch et al. 1996; Verweire

and Van den Berghe 2003; Rouse and Putterill 2003). Most of the existing performance measurement systems are used to measure business performance, but have not been specifically designed for team performance measurements. Some performance measurement systems are used as means to help deploy business objectives to an operational process level (Neely et al. 1996; Kaplan and Norton 1992, 1996a, b). In this way, performance measurement facilitates the alignment of goals of all individuals, teams, departments and processes with the strategic business aims of the organization (Yeo 2002). However, these performance measurement systems are rather organizationally focused; it has been claimed that those measurement systems are generally unsuitable for team performance measurement (Zigon 1997; Meyer 1994).

As the focus is OL, the performance outcomes of teams associated with OL goals need to be dealt with explicitly. Measurement of performance should be considered at different levels, including individuals and processes (Yeo 2003). Team measurement must be done at both team and individual levels (Zigon 1997). The importance of performance measurement for learning teams is thus many fold. Not only should it demonstrate what a learning team does, but it should also illustrate how well it undertakes it and how much progress it has made throughout the process of achieving its goals. Equally importantly, it helps OL leaders to manage the organizational change, development, as well as learning process more effectively.

Ideally, a performance measurement system deals with the clarification of goals, the alignment of both people and processes, and the monitoring of the progress with respect to business objectives. More specific and directly connected organizational metrics need to be identified (Burrow and Berardinelli 2003). Hence, a performance measurement system for project learning teams should be able to identify the performance gap between actual team performance and the expected team goals, thus, to find out the ways to improve both the learning and subsequent performance. We have found little research on team performance measurement in OL setting. Tosey and Smith (1999a, b) assessment of LOs is based on a three-'field' system (focus, will and capacity) and model organizations as 'energies' of consciousness. Yeo (2003) suggested alternative views of performance measures of LOs by examining the cognitive and behaviour of individuals. Most of these assessment approaches are either organization based or individual based. The linkage between team effectiveness and team performance is not yet well addressed. This is the gap in OL team performance measurement we are addressing in this thesis.

2.2.4.2 Measuring Organizational Learning

Similar to the measurement of team learning performance, measurement of the OL performance is carried out with respect to the preset organizational goals and outcomes.

There is yet no evidence of any foolproof ways to measure how effective or ineffective learning initiatives may be. Contemporary performance measurement apparatus does not meet all the requirements of knowledge-intensive organizational environment (Vakkuri and Meklin 2003). Traditional measures such as profits may actually be undesirable because LOs should not focus on short-term

solutions (Senge 1990). The impact of culture on the performance measurement within organizations is also emphasized (Vakkuri and Meklin 2003). The process of measuring learning is highly subjective because it involves tapping into people's perceptions and personal judgments.

It has been argued that implementation of OL has been hindered by the lack of methods to measure learning activity (Smith and Tosey 1999). Some researchers proposed that OL could be measured by including employee and information system capabilities, motivation, empowerment and alignment into an integrated balanced scorecard (Kaplan and Norton 1992, 1996a, b).

Assessing LO is even harder than measuring learning activity and performance within an organization. It is rather a social process to link an organization's learning status (mindset, culture, practice, effectiveness, etc.) with LO ideals (Smith and Tosey 1999).

Better qualitative performance measurement is called for in the measurement of learning within an organization (Sun and Scott 2003). It is because the learning processes are multidimensional and influenced by various factors such as individual beliefs, collective culture, organizational factors and interpersonal factors, which are difficult to measure quantitatively. It is crucial to develop an LO measurement approach and system that is appropriate and acceptable to employees at different levels of the organization.

Assessment based on an organizational behavioural platform, which considers performance modelling driven by general business outcomes and LO ideals, for instance in terms of focus–will–capacity, can be the foundation for development of assessment methods regarding its practicality and consistency.

2.3 Chapter Summary

As evident in the wealth of literature, OL has been widely viewed as one of the most important means to achieve organizational development. In the other words, OL is seen as a conscious organizational goal-driven process with individuals or teams as the learning agents. The predominant view of Argyris and Schon (double-loop learning) and Senge (the Fifth Discipline) has helped shape the advances in LO and OL theories and practices. Many of these approaches focused on the learning action role of individuals without explicitly addressing the organizational cultural dimensions nor prescribing in clear terms the learning-action performing role of individuals in a group or team setting.

This thesis, as pointed out earlier, focuses on the issues of action learning in a project team setting. It will build on the research model that decomposes OL into driver, enablers, learning and outcome. The model not only describes OL as a continuous goal-driven process, but also allows the study of the organizational factors influencing OL process and outcome and the development and implementation of an OL framework (PAL).

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