EXPLORING LEARNING MECHANISMS: UNDERLYING PROCESSES FOR ORGANISATIONAL RENEWAL

Selen Kars-Ünlüoğlu[1] and Mark Easterby-Smith
Lancaster University Management School
Department of Management Learning and Leadership

ABSTRACT:

This paper investigates the role of underlying learning structures and processes in the adaptation and renewal of organisations. In doing so it utilises and extends the concept of organisational learning mechanisms (OLMs) developed by Popper and Lipshitz (1998; 2000), as an organisational process of knowledge acquisition and sharing. We report from our empirical research in six, mature, medium-sized companies operating in three different sectors with varying levels of market dynamism. We extend the notion of OLMs by exploring the specific ways in which mechanisms are constructed, designed and implemented. We conclude that three aspects are of particular importance ensuring that OLMs produce higher-level organisational learning. These are: rules and procedures for OLM design and implementation, the extent of co-creation of knowledge in an OLM, and valuation of knowledge by senior management. The paper provides sharper insights into the genesis and consequences of learning processes.

KEY WORDS: organisational learning, learning mechanisms, structural and procedural arrangements for learning, co-creation of knowledge, valuation of knowledge

[1] Corresponding Author: Selen Kars-Ünlüoğlu, Lancaster University Management School, Department of Management Learning and Leadership, LA1 4YX Lancaster, United Kingdom. Tel: +44 (0) 7964047944. Email: s.kars@lancaster.ac.uk

1. INTRODUCTION

This paper contributes to our understanding of organisational learning mechanisms (OLMs) as processes of knowledge acquisition and sharing. The ability of organisations to learn and acquire knowledge has emerged as a key factor influencing organisational performance and survival (Argote et al., 2003). Many organisations allocate dedicated resources to organisational learning processes. Examples include R&D departments, formal training programmes, and hiring employees with specialised knowledge. In this paper we examine the structural arrangements focused on acquiring, distributing and interpreting knowledge to promote organisational improvement and renewal and to enhance the necessary commitment, capabilities and motivation of organisational members.

We report from our empirical research with six, mature, medium-sized companies that are operating in three different sectors with varying levels of market dynamism. Drawing on the concept of OLM (Popper and Lipshitz, 1998; 2000) we examine a variety of learning processes implemented in these organisations. The notion of "learning mechanisms" is receiving some attention in the literature on organisational capabilities (e.g. Eisenhardt and Martin, 2000; Zollo and Winter, 2002) but it has not been empirically tested. Systematic and empirical work carried out on the concept has been limited.

A number of factors can influence how these OLMs support organisational learning. The characteristics of mechanisms themselves, of the individuals who designed those mechanisms, of the organisational members who are involved in those mechanisms, and the organisational and external environment in which those mechanisms are used, can each have an impact. Existing studies on OLMs have focused more on structural aspects of OLM, rather than on the cultural, organisational, contextual facets that surrounding it. In this paper we focus particularly on the specific ways in which mechanisms are constructed, designed and implemented in an attempt to understand the design characteristics and social arrangements of OLMs used by innovation-focused organisations.

In the next section we present some theoretical background on learning processes and mechanisms and what the process-view on organisational learning has meant for linking between individual and organisational learning. Section 3 outlines our empirical setting and analysis. In section 4 we present an account of organisational learning mechanisms designed and implemented in our six organisations. We also describe the ways in which organisations design and implement a variety of OLMs illustrative vignettes before moving to our discussion and conclusions.

2. THEORETICAL BACKGROUND

In the past three decades there has been a growing interest in learning processes in organisational contexts, fuelled by a belief that learning is essential for the development and refinement of a variety of capabilities (Teece et al., 1997) and for the survival in competitive environments (Fiol and Lyles, 1985; Nonaka 1991, Senge 1990). In order to adjust to the changing environment and to take appropriate actions, organisations must be aware of environmental changes (Hall and Saias, 1989), make sense of the environment (Daft and Weick, 1984) and draw the right lessons for necessary improvement activities (Bessant and Francis, 1999). Keeping pace with changes in the environment necessitates organisational renewal (Barr et al., 1992; Levinthal and March, 1993) and this requires intensive learning

activities focusing on gathering and assimilating information from both organisational experience and from the external environment (Levitt and March, 1988).

Organisational learning research can be perceived along two streams: first, learning as an *independent* variable; activities, structures and strategies performed by the organisation to promote learning (DiBella et al., 1996; Huber, 1991; Lipshitz et al., 1996) and second, learning as a *dependent* variable, detecting the outcomes of the learning process through changes in shared mental models of organisational members (Levitt and March, 1988; Kim, 1993) and through behavioural outcomes, such as changes in organisational standard operating procedures, routines and performance (Cyert and March, 1963). This research stems from the former stream, studying structural-social arrangements that promote productive organisational learning.

In the present study, modifying Argyris and Schon's (1996) definition slightly, we define organisational learning as the process by which organisation acquires information (knowledge, know-how, techniques) of any kind from multiple sources and develops and shapes its knowledge base through this newly acquired information. This definition highlights a problem: how organisations learn? This problem is partially answered by Simon (1991, p.125): "an organisation learns in two ways: (a) by the learning of its members, or (b) by ingesting new members who have knowledge the organisation previously did not have". A more conceptually detailed answer to the question is offered by scholars studying structural-arrangements promoting organisational learning. These studies elaborated in Huber's (1991) and Di Bella et al.'s (1996) works classifies five phases of organisational learning cycle: (a) information acquisition including congenital learning (inherited knowledge from organisational members), experiential learning (learning from organisational experiments), vicarious learning (learning from other organisations), grafting (learning from newly-recruited members) and searching and noticing the environment; (b) information distribution – the process of sharing information that leads to understanding (Huber, 1982); (c) information interpretation – the process of giving meaning to the distributed information and developing shared understandings (Daft and Weick, 1984); (d) organisational memory – the process of storing mental (e.g. stories) and structural (e.g. written policies, operating procedures) artefacts (Weick, 2000) and retrieving information. Although these four processes of organisational learning are listed in progressive order, learning is perceived as a cyclical, dynamic process. In Huber's (1991:105) view humans are the main "repositories" of information; but learning does not always result in observable change in their behaviour. He specified that the product of learning may be purely cognitive. Huber attempts to devise a holistic understanding of organizational learning by proposing a behavioural definition of organisational learning and by building their work on Daft and Weick (1984), but he is relatively reluctant in discontinuing the cognitive perspective with his over-reliance on learning as information-processing.

As Huber's (1991) study shows organisational processes and sub-processes that contribute to changes in organisations' potential behaviours are varied but the question of how does individual learning of organisational members becomes the property of organisation remains unanswered by existing studies. The processes listed above explains how organisational members acquire, distribute, interpret and store information but structural and social arrangements that transfers individual learning to organisational knowledge is found to require empirical work for further advancement. Nonaka and Konno (1998) develop a process-based SECI model explaining how individual's tacit knowledge is transferred into organisational knowledge. The model describes a dynamic process in which explicit and tacit

knowledge are exchanged and transformed. Their work is interesting in the sense that it accommodates the paradox of learning – although organisational learning occurs through individuals, organisational learning is more than the cumulative result of their members' learning (Hedberg, 1981; Argyris and Schon, 1978). On the other hand, they down-value the importance of external ideas and knowledge and solely focus on exploration rather than exploitation. As a best-seller author in management circles who is often mentioned in discussions about knowledge management, he attracted significant criticism (e.g. Gourlay, 2006; Jorna, 1998). The methodological foundations of their work the SECI model, and the conceptual underpinnings that the model is built on is severely criticised, but Nonaka has responded robustly to these criticisms through his more recent works.

The concept of OLM introduced by Popper and Lipshitz (1998; 2000) refer to structural and procedural arrangements allowing organisations to collect, analyse, store, disseminate and use knowledge that is relevant to the organisation. OLMs are social arenas where individual experiences and knowledge are shared with and analysed by other organisational members. The experience and knowledge then become the property of the entire organisation through dissemination to relevant units or through changes in operating procedures (Lipshitz and Popper, 2000). Other scholars have mentioned the guiding role of learning mechanisms in organisational renewal (Eisenhardt and Martin, 2000; Goshal, 1987; Zollo and Winter 2002), and many other scholars have studied the role of mechanisms in gathering and interpreting information, even though they do not label those mechanisms as OLMs explicitly.

Examples of information gathering mechanisms are quality circles (Deming, 1988), external alliances and joint ventures (Hamel, 1991; Kogut, 1988), small-scale experimentations (Huber, 1991; Prahalad and Hamel, 1990) and experience accumulation mechanism (Zollo and Winter, 2000). After-action reviews (Baird et al., 1997; Carroll, 1995; Edmondson, 1996; Gulliver, 1987), employee rotation (Virany et al., 1992) and knowledge articulation mechanisms (Zollo and Winter, 2000) are mechanisms established by organisations that help their members to discuss their experiences and views and exchange and interpret information. However, to be productive these OLMs needs to be supported by cultural (Lipshitz and Popper, 2000), organisational and contextual (Zollo and Winter, 2000) facets – such as social atmosphere, leadership style and speed of technological development in the environment.

While some of the existing studies imply relatively broad structural mechanisms for learning (e.g. Eisenhardt and Martin, 2000; Nonaka and Konno, 1998; Zollo and Winter, 2002), the concept of OLM as approached by Popper and Lipshitz (1998; 2000) calls for the design and implementation of more specific OLMs. Interestingly, while the work of Popper and Lipshitz has aroused significant interest in educational research (e.g. Schechter, 2007; Schechter and Feldman, 2010; Wohlsetter et al., 1994), the repercussions for the business research has been limited with the exception of few articles published on the topic (e.g. Ellis and Shpielberg, 2003; Kane and Alavi, 2007; Shani and Mitki, 2000; Oliver, 2009). We think that the concept of OLM is instrumental for exploring learning strategies developed and adopted by organisations since it allows us to study organisational learning as an actual phenomenon by focusing on existing "mechanisms". We propose that the form and extent of adoption of OLMs can explain why some organisations learn more effectively than others, and will be a determinant of the level of success achieved. We are interested in exploring the characteristics of OLMs used by innovation-focused organisations to support organisational improvement.

3. METHODOLOGY

3.1. Empirical Setting and Data Collection

Case study research was carried out in six Turkish mature, medium-sized companies. The companies are operating in three different sectors with varying levels of dynamism, ranging from slowly-evolving industries to high-velocity industries. In assessing environmental dynamism we adopted Eisenhardt and Martin's (2000, pp. 1110-1111) distinction between moderately dynamic markets in which change occurs frequently, but along roughly predictable and linear paths, and "high-velocity" markets where change is non-linear and less predictable. But we also added a third category, "slowly-evolving markets" in which, in contrast to moderately dynamic markets, change does not occur frequently and the level of dynamism in terms of competition and technological development is significantly lower when compared to other two types of markets. Accordingly, we selected olive oil processing, automotive component manufacturing and tourism industries as representatives of slowly-evolving, moderately dynamic and high velocity markets, respectively. These three sectors have also received significant media interest in the last years in Turkey.

All six companies have been successful in their respective industries for many years. The two companies selected from each sector were "matched pairs". Within each pair, one was identified as a successful innovator with a reputation for continually seeking technological and managerial improvements; the other had a reputation as a successful player in the same industry but sought to main stability with far less attention to innovative methods and ideas. The companies were selected as a result of preliminary interviews carried out with general secretaries of representative associations of the three sectors covered in this study. Although the companies differed in terms of their organisational renewal and innovation potential, they were very similar in terms of their industry, size, ownership structure and age – and they were all successful. In the remainder of this paper we refer to the three companies at the more innovative end of the range as *innovators*, and to the three at the less innovative end as *adaptors*.

Key features of the six companies are summarised in Table 1.

Industry Dynamism	Industry	Site Name	Innovativeness Classification	Age	No. of Workers	No. of Interviewees	Family Firm	Management Structure
Slowly-Evolving	Olive Oil Processing	Gold	Innovator	90	75	7	Yes	Owner-managers
Slowly-Evolving	Olive Oil Processing	Crystal	Adopter	70	92	6	Yes	Owner-managers
Moderately Dynamic	OEM - Brakes Manufacturer	Accelerator	Innovator	45	200	6	Yes	Owner-managers
Moderately Dynamic	OEM - Rubber Parts Manufacturer	Suspension	Adopter	48	180	7	Yes	Owner-managers
High Velocity	Thermal Therapy	Seahorse	Innovator	28	215	9	No	Professional managers
High Velocity	Thermal Therapy	Dolphin	Adopter	34	109	7	Yes	Professional managers

Table 1. Brief Case Profiles

In this paper we draw from our empirical material generated in semi-structured interviews. Around five to nine people, mainly middle and upper managers including the managing

director, were interviewed in each company. Interviewees ranged in terms their experience with the company from 1 to 25 years. A total of 42 qualitative interviews of typically 60 to 90 minutes duration were held. The interviews covered a wide range of topics from the key milestones in the organisation's history to discussions around competitiveness and innovation. But in all interviews a specific focus on mechanisms, structures and tools enabling knowledge acquisition, knowledge creation and application of new knowledge via adoption of innovation was maintained. Notes were taken in all interviews, and 33 out of 42 interviews were also tape recorded. All tape recorded interviews were fully transcribed and extensive case study narratives were produced after data collection based on researcher's field notes. The first author spent 2-3 full days at each research site, which meant that along with formally organised meeting with research participants she spent time in informal meetings with research participants over lunch and in between interviews.

3.2. Data Analysis

A great deal of this process, as we experienced it, was intuitive, emergent and iterative. The highly iterative and cyclical process that we have been through included various steps of analysis. At the end of each day in the field, we systematically produced "contact summary sheets" (Miles and Huberman, 1994, p. 51) which were 1-2 pages of write-ups aiming to briefly develop an overall summary of the main points of that day's interviews. These rapid summaries were written up in a couple of hours aiming only for easy retrieval and synthesis of what the interviews were about. By thoroughly reading contact summary sheets, field notes and interview transcripts, we searched for themes, topics, and potential concepts that seemed to be important while filling the pages with detailed notes in the margins with emerging ideas about what can be done with different parts of the data. What is important to stress is that these "case study narratives" were structured around a number of themes *emerged from the data* and did not include the examination or integration of any literature. Although themes were not necessarily replicated across cases, since they emerged from the interviews conducted within each company, they still allowed cross-case patterns to emerge.

We utilised a "partially ordered meta-matrix" as proposed by Miles and Huberman (1994) to assemble comparable data in one place, in a coherent fashion. We included all relevant data in a condensed format to a big, master chart, by placing all themes that were relevant for the research question in columns and individual cases in rows. Trying to fill out each cell entry forced us to think about individual cases from different angles and placing the date for all firms enabled us to compare not only firms that were matched at the data collection stage but to create new pairs across sectors and across level of innovativeness. Once certain patterns and clusters started to emerge from this step, we tried to categorise each firm according to certain dimensions of interest. A tactic that we used to do this was to draw scatterplots (Miles and Huberman, 1994) and to plot each of the cases on two or three dimensions (axes), so that similarities and differences among cases can be seen visually and spatially.

The next step in analysis was generating explanations and testing them by cycling back and forth between case narratives and cross-case displays in order to see how certain aspects of the phenomenon were exemplified there. This step was a highly iterative process that involved systematically comparing the emergent propositions from each case in order to assess how well or poorly it fits with the case data. To maintain an inductive approach to theory development, emergent theoretical propositions were *written up from the data*, without the use of any relevant theoretical literature. We then looked into the general propositions

case-by-case to see the degree of support for the proposition in each case. This approach suggests the constant comparison between data and propositions to accumulate and build evidence from diverse cases that converges on a single theoretical framework.

4. ORGANISATIONAL LEARNING MECHANISMS

Organisations utilise a variety of internal structures and processes to attend environmental changes and to realise organisational change in order to give the necessary responses to the changing environmental circumstances. Lipshitz and Popper (2000) call these structures OLMs which can be defined as the institutionalised structural and procedural arrangements that allow organisations to systematically collect, analyze, store, disseminate and use information relevant to the performance of the organisation. OLMs range from social organisational arrangements like meetings and training to physical objects like reports and suggestion boxes. In order to be classified as an OLM, an organisational structure should provide a venue or a means for aiding information exchange and new knowledge acquisition which will lead to modification and transfer of individual learning to the organisational knowledge base.

Nineteen OLMs were identified in six organisations by a search for systematic patterns of formal and informal knowledge acquisition and assimilation activities. Table 2 provides a snapshot of OLMs observed in each organisation. The list of OLMs as described by interviewees are categorised in line with the Huber's (1991:90) processes of learning – knowledge acquisition, knowledge distribution and knowledge interpretation[2]. A similar, very popular, classification was introduced by Alavi and Leidner (2001) – knowledge creation, knowledge storage and retrieval, knowledge transfer and knowledge application. By recognising the cognitive underpinnings of Huber's work we use his classification as it is useful for classifying OLMs following Popper and Lipshitz's conceptualisation of the notion.

In Table 2 we indicate the presence of each OLM with ticks in the boxes. The ticks tell us nothing about *how* particular OLMs are performed or implemented, and we will discuss the implementation later in this section. However we start with comments on the simple patterns evident in the table.

Although all six companies utilise several OLMs it is evident that within the same industry adopter companies have less OLMs than innovator companies. This suggests that innovator companies show more willingness and exhibited capacity to learn than adopter companies do. But interestingly, this distinction between innovators and adopters does not hold when inter-industry comparison is done. Gold Oil which is classified as an innovator has far less OLMs in place when compared to Dolphin Hotel. This occurrence can be explained with varying levels of market dynamism. Because the olive oil industry is a slowly evolving market, the degree of new knowledge generation and technology creation at the industrial level is low, meaning that the amount of knowledge that the organisation has to acquire and can acquire is not as ample as in a more dynamic industry.

[2] Huber uses the word *information* when referring (Huber, 1991, see the footnote n. 1 on p. 89 for more details) to data that reduces ambiguity and uncertainty and other types of factual knowledge, while he uses *knowledge* when referring to more complex products of learning, like know-how.

		COMPANIES					
		Crystal Oil	Gold Oil	Suspension	Accelerator	Dolphin	Seahorse
		Slowly-Evolving Industry		Moderately Dynamic Industry		High Velocity Industry	
		Adapt.	Innov.	Adapt.	Innov.	Adapt.	Innov.
ORGANISATIONAL LEARNING MECHANISMS	**1. Knowledge Acquisition Mechanisms**						
	Quality Management System (ISO and other)		✓	✓	✓	✓	✓
	Internal Quality Audits		✓	✓	✓	✓	✓
	External Quality Audits				✓		✓
	Staff Surveys					✓	
	Suggestion Boxes		✓		✓	✓	
	Overseas Trips ♦						✓
	Journal Reading Hours						✓
	Occupational Library						✓
	2. Knowledge Distribution Mechanisms						
	In-house Training						
	a. On-the-job training	✓	✓	✓	✓	✓	✓
	b. Quality training		✓	✓	✓	✓	✓
	c. Technical training (professional development)		✓		✓	✓	✓
	d. Behavioural training (personal development)					✓	✓
	External Training				✓	✓	✓
	Learning Reports				✓		✓
	Research Club †						✓
	3. Knowledge Interpretation Mechanisms						
	Review of Patient Records ¥	N/A	N/A	N/A	N/A	✓	✓
	Quality Meetings			✓	✓	✓	✓
	Staff and Management Meetings	✓	✓	✓	✓	✓	✓
	Union Meetings	N/A	N/A	N/A	N/A	N/A	✓

Table 2. List of Organisational Learning Mechanisms

♦ Undoubtedly, overseas trips are very common in every organisation that has an international outlook. But here, we only include overseas trips which are inclusive. That is to say, international fairs to explore trading opportunities or family/board members' visits to abroad are not included to this table.

† This OLM include presentations by physiotherapists and physiotherapy MDs of innovative applications in the industry published in professional literature and presented in training events and conferences Employees who come across to a new idea, a new application or a new treatment method in Journal Reading Hours or External Training OLMs or as a result of their individual researches share their findings with their colleagues during these meetings.

¥ This OLM aim to review the effectiveness of treatment given to patients suffering from various health conditions based on statistical indicators of medical records. This year-end review helps the medical superintendants to analyse and use information relevant to the performance of the cure centre.

This suggests that it is not necessary to have a large number of learning mechanisms in markets with a low rate of change, and it may even prove to be dysfunctional as the organisation would be spending too much of its resources on explorative activities at the expense of focussing on exploiting its current capabilities. Thus, Dolphin Hotel and Seahorse Hotel have institutionalised more OLMs than Suspension Auto and Accelerator. It can be concluded that organisations inhabiting environments with relatively higher rates of change utilise a higher quantity of OLMs when compared to organisations inhabiting in environments with relatively slow-changing environments. This finding provides empirical support for Zollo and Winter's (2002) suggestions that speed requirements of business environment (such as the speed of technological development) requires higher learning investments.

However, it is also important to look below the surface to understand how particular OLMs have been implemented. Although some of them, like training and meetings, exist in all six companies, they do not produce the same learning outcome. For instance, although every organisation presented some sort of training opportunity to its employees, the knowledge base and knowledge generation potential of each organisation differs dramatically when compared with each other. This suggests that the existence of OLMs cannot, in itself, account for productive organisational learning. OLMs such as technical training, quality training or quality meetings can be instituted and operated with great fanfare yet without improving the organisation (Feldman and March, 1981). In recognition of this possibility, we wanted to assess to assess the contribution of particular procedural arrangements of specific OLMs to innovation and learning.

When OLMs in six participant organisations were compared we found out that there is a clear distinction between standard information processing mechanisms and more reflective learning mechanisms which generate imaginative responses to environmental challenges. We argue that these differences were caused by variations in three critical design aspects: rules and procedures followed for the running of the OLM, the extent of co-creation of knowledge and recognition of value of knowledge by senior management. In the following we will present three vignettes exemplifying the influence of these three factors. The first vignette describes different forms and rules followed in carrying training curriculum offered by four organisations. The second vignette touches on the importance of co-creation of knowledge through reviews of patient records in Dolphin Hotel Cure Centre and Seahorse Hotel Cure Centre. The third vignette covers differing applications of quality mechanisms in five of the organisations showing how senior management's valuation of knowledge influences the use of quality management system. Each of these vignettes analyses a different OLM, which is commonly found in the modern organisation, namely training, meetings and quality management systems.

4.1. Rules and Procedures

As presented in the previous section every organisation participated in this research provided some sort of training to its employees. But the emphasis given to employee development (both technical and behavioural) varies between organisations. In Table 2 we have categorised the training initiatives of the organisations in four broad categories: (1) on-the-job training, (2) quality training which are required by ISO or other certifying body, (3) technical training aiming professional development of employees, and (4) behavioural training like time management, body language which aim to support personal development of employees. Using this broad categorisation we can easily place the six organisations on a continuum where at

than low end we will see Crystal Oil and on the high end there will be Seahorse. But using these four categories says little about the quality and content of training offered by the organisation. While analysing the training programmes of the research participants, it became clear that organisations' training programmes can be compared on several dimensions.

(1) What is the content of the training programme? (on-the-job, quality, technical, behavioural)

(2) Who decides which training to include to the programme? (employee herself, employees' department, a centralised body in the organisation – HR department or quality department – decides on the training needs for all organisational members)

(3) How the training is delivered? (in-house, by predetermined external bodies, by various external bodies)

(4) Is the training effectiveness measured? If yes, how?

Table 3 provides answers to the questions:

	(1) Content of the training				(2) Deciding body			(3) Delivery of the training			(4) Training effectiveness measurement
	O-t-J	QUAL	TECH	BEH	CENT	DEPT	EMPL	INT	EXT	VAR	(Yes/No)
Crystal	✓				No training programme						No
Gold	✓	✓	✓		✓			✓	✓		No
Suspension	✓	✓			✓			✓			Yes
Accelerator	✓	✓	✓			✓		✓	✓		Yes
Dolphin	✓	✓	✓	✓		✓		✓	✓		Yes
Seahorse	✓	✓	✓	✓			✓	✓	✓	✓	Yes

Table 3. Summary of Training Programme Features

Crystal Oil does not have a designed, formal training programme. The only training offered to employees is a basic on-the-job training at which the foreman shows how to operate a machine to the newly-recruited operators. **Gold Oil** which operates in the same industry has a formal training programme. The quality training programme predetermined by the certifying body is delivered by the consultancy company hired for the development, implementation, review and training of ISO Quality Systems. Alongside these fairly standardised quality training courses, the shop-floor workers and sales staff receive professional training courses relevant to their job. The professional training courses are richer than the quality training courses; they are also updated frequently, even monthly, when a problem is noticed with the application of training deliverables. They are generally internally-sourced, especially for the sales and merchandising people, but when necessary external trainers with expert knowledge are invited to the company site to deliver the training to all levels of staff.

The routine for determining training needs of the employees and designing the training curriculum is same at **Suspension Automotive.** It is the Quality Department that determines the curriculum and prepares an annual training schedule. Not surprisingly, all courses are focused on quality and thus relate to the employees working on the shop-floor only. The administrative personnel receive only an introductory training about the fundamentals of the ISO system. From this respect, the span of content covered in training courses is much narrower at Suspension when compared to other companies. All training courses are delivered in-house at Suspension by the Quality Assurance Manager. It is only she (and in some cases the Factory Manager) who attends external training events and then teaches what she has learnt in the external training to the rest of the staff. Since everyone is exposed to the same training material, regardless of their job and position means that they either learn things that are not central to their work or those things that are central are presented in a simplified

version. Our data suggests that these training procedures kill much of the dynamism that could have been generated from the OLM if run in a more participative and diverse manner At the end of the training in order to measure the training effectiveness employees sit for a multiple-choice exam, but as the Quality Assurance Manager admits: "Knowing something and carry that knowledge over your work are two different things… [F]or operational staff such a test means nothing but rote learning".

The participative nature and variety of training courses that was lacking at Suspension Automotive existed to some extent at **Accelerator Automotive**. Each department declares their training needs to the Human Resources Department that then creates an annual training budget and schedule. The employees can communicate individual training needs and suggestions to their manager which after consideration at the departmental level can be incorporated to the training curriculum. The procedure of consulting departments and indirectly employees before designing the training curriculum makes the OLM more open to development and change. Secondly, the routine of delivering training courses creates potential for richer learning outcomes. At Accelerator, not only the managers but also employees are allowed to attend external training events. During the course participants have the opportunity to meet other people from different organisations, to share experiences and to learn about different applications. This injects some sort of dynamism to the OLM: having different trainers and different participants every single time produces diversity of learning outcomes. Upon the completion of technical training courses attendees are expected to do a small-scale project and apply the knowledge acquired in those training courses. This routine is not only a way of measuring training effectiveness but it also ensures integration of new knowledge to the organisation.

When we look at the OLMs operating in the tourism industry we see that there is far more investment in human capital, and a number of training programmes run throughout the year. The first difference that strikes attention is the existence of behavioural training courses at Dolphin Hotel and Seahorse Hotel, while the other organisations made no efforts in that area. This divide can be attributed to the nature of the services industry as the main input to the production of the service is the human element while the manufacturing industry relies more on technology and machinery than human capital. However, the existing OLMs are run differently in these two hotels.

As can be seen from Table 3 the training curriculum is determined and designed at the departmental level at **Dolphin Hotel** as was the case in Accelerator. Still like Accelerator, Dolphin utilises external knowledge sources in the training of its employees. We see that external bodies from which they receive training courses are more diverse, including consultancy companies, Ministry of Culture and Tourism, Tourism Education Centres and two universities located in the city; and the training courses given by the universities' faculties of tourism tend to be quite changeable in terms of content and mode of delivery. Sometimes interested staff is invited to join a seminar at the university about novel topics in the area of tourism or sometimes it is the hotel management requesting a guest lecturer to come to the hotel and give a lecture on a topic regarding day-to-day business. In addition, the management encourages the hotel staff to take part in the certificate programmes offered by the Ministry of Culture and Tourism and hence asks organisational members to take responsibility of their own learning and professional development as becoming a certified employee is by no means a requisite or advantage for career development.

Seahorse Hotel has the most open learning system. Not only does it invest heavily on training and development of organisational members at all levels it also has developed a set of participative routines to ensure dynamism and transiency. It has an extensive and comprehensive training curriculum including quality- training courses, professional training courses delivered by external bodies, international and national part-time certificate programmes attended over a long period of time. But in contrast to other cases this curriculum is fully tailored for the needs of specific departments in order to communicate the usefulness of the new learning to the employees and to make the learning experience more relevant to work practices and all training courses are delivered by specialised external bodies. Alongside this training curriculum, a high level of individual initiative for developing additional training programmes is cultivated. In the case of the cure centre, the physiotherapists search for new training programmes individually and then they apply for funding for participation. The knowledge acquired individually in these events is shared at the unit-level with the help of *Research Club* OLM. Another example that would apply cross-departmentally is that organisational members at all levels are encouraged to attend one or two conferences in their areas every year. Upon their return they submit a learning report with dual-purpose – measuring training effectiveness and transforming individual learning to organisational learning through sharing knowledge acquired – stating the learning points from the event and potential methods and/or developments that the attendee was exposed during the event and thinks that can be implemented in Seahorse. The report is presented to the General Manager including a feasibility study. Many new treatment methods (e.g. musicotherapy), services (e.g. yoga) and cooking practices (e.g. steam-cooking) are introduced with this routine.

4.2. Co-Creation of Knowledge

Both in Seahorse and Dolphin Hotel patient records are reviewed annually. The system of collecting patient records is quite similar in both organisations. When patients check in to the cure centre they go through a medical control which includes a check-up of their current health condition and some body tests relating to their physical diseases (for example flexion measurement of spine) and after, the patient receives the 2-3 weeks-long cure. At the check-out the same controls are done and the improvement of patient's medical condition is recorded which is then stored and used as input for treatment statistics. But although the procedure of recording and reviewing seems to be the same at the first sight, there are some notable differences of how this OLM is being carried out with implications for improvement and exploration of treatment methods.

The patient data collection procedure is significantly different. For instance, in Seahorse Hotel the data feeding into the annual review is 50 times larger in terms when compared to Dolphin which collects check-in/check-out medical data from 250 points only. Bigger sample size in Seahorse means more cases to be studied and explicated and also provides richer insight about diagnosis treatment effectiveness for a variety of disease groups ranging from the most common inflammatory rheumatic diseases to seldom-encountered orthopaedic and neurological rehabilitation. Not only the number of patients included to the statistical analysis but the amount of information recorded on the patient's medical condition is a valuable input to explicate treatment effectiveness deeply. From this perspective, Seahorse is found to be significantly more advanced than Dolphin when the number of criteria used to assess patients' medical conditions is compared. Dolphin uses only objective criteria for assessment, whereas Seahorse adds in subjective measurement instruments to track patient pain and well-being namely the "visual analogue scale".

Annual reviews of patient records are done by the participation of all cure centre medical staff in Seahorse while in Dolphin the medical superintendant does the review on his own without the presence of any other staff. The participative and collaborative nature of how this OLM is operated at Seahorse provides a venue for lengthy explication of unsuccessful cases and it makes possible to feed in the insights from the staff who took part in the treatment of unsuccessful cases to the evaluation of treatment effectiveness. Moreover, the dialogue and communication enabled through staff participation creates a real opportunity for learning organisationally at Seahorse; whereas the convention of writing a report to the management by the medical superintendent at Dolphin tends to encapsulate the knowledge created from this OLM in the domain of a narrow, exclusive circle of people. The strategy of one-way communication probably leads to the loss of some valuable knowledge which could have been used more effectively in the development of existing methods. The procedure of dialoguing and discussing at Seahorse as a part of this OLM acts as a source of organisational and service-related innovation.

These findings suggest that the scale of actor involvement determines the extent to which the organisation learns as a community. Where this participation is low, knowledge remains located in a narrow circle of organisational members; where it is high, opportunities for learning and renewal are created for the wider organization.

4.3. Valuation of Knowledge by Senior Management

Rules and forms for this OLM are very standardised by the nature of the ISO quality certification requirements but the conventions of applying those rules and filling out those forms are good example showing how valuation of knowledge can affect OLMs' potential to generate knowledge and innovation.

Crystal Oil does not have ISO certification because it is not a key success factor in the olive oil industry. Yet, **Gold Oil** which is in the same industry has gone through the process of being certified for ISO 9001 and ISO 22000. ISO is not directly related with competitiveness, because the regulative framework and demand conditions do not require Dolphin to be certified; but Gold values ISO not as a mere certificate but as in its entirety with all the learning opportunities it creates. Gold got its ISO 9001 certification in 2003 and in 2007 got ISO 22000 which is more about food safety and hygiene rather than the quality of the product. After getting ISO 22000 they dropped 9001 in 2008 because they say they now have a system in place for quality assurance. After having established their Quality Management System (QMS) based on ISO 9001, developed routines and routines for applying it, and internalised it after 5 years of application they moved forward to another certificate that concentrates to other aspects of the production process.

Cure Centres are motivated to sign agreements with foreign countries' Health Ministries in order to guarantee a certain inflow of patients in off-season periods. In order to sign these agreements they need to be certified by EuroSPA-Med. One eligibility criteria for EuroSPA-Med is to have a QMS in place. Thus, QMS is required to maintain competitiveness in this industry. That is the major reason for **Dolphin Hotel**'s application for ISO 9001 certification. When we look at adoption and application of quality systems at Dolphin Hotel, it is clearly seen that ISO certification is perfunctory characterised by superficiality as the application of it is far from the underpinning philosophy of ISO. Except the kitchen area which is strictly

monitored and controlled according to HACCP [3] criteria, in none of the remaining department quality management is practiced systematically. When asked about how they go through the audits, the Quality Specialist answered:

> "Turkish people do not fancy writing, you know. This proved to be a difficulty for us in ISO implementation. Anyway, I do all the writing; I fill in the required documentation. Departmental supervisors tell me the work routine and I fill in the work flow chart, for example. Only the kitchen area writes the measurements in real-time." *(Quality Specialist)*

While in Dolphin all documentation is filed in by the Quality Specialist retrospectively with the input provided from the departmental supervisors; if ISO principles were applied truthfully the employees should be recording every work practice as they do them to the relevant forms. Because of this, the redevelopments in the service quality are done in a reactive way. When asked about the reasons of these "shortcuts" the General Manager said:

> "We talked with the company giving us the ISO certification that this business cannot be done with so much paperwork. If we do all these we cannot possibly serve the customers. We need to modify it".

The General Manager of **Seahorse Hotel** also does not believe that ISO is ideal for the tourism industry. But while Dolphin chose to modify and implement it in its own way, Seahorse built a unique QMS that prioritises speed, quality of service and customer-focus. The team first pooled together quality standards and forms stipulated by different QMS and then those standards are adopted according to their congruency with the dynamics of tourism business. Although this approach can be criticised by being eclectic it allows Seahorse to exploit extant QMS and then to explore new ways of adaptation for the tourism context. To make this point explicit let's consider the application of Seahorse QM at the kitchen area. In order to fulfil the requirements of ISO, HACCP and EuropeSPA-Med in the kitchen area the staff needed to fill out seven different forms. Yet given the busyness of the staff in the kitchen area and the level of education of the staff expecting them to fill out the forms in a proper way was very unrealistic. The Quality Specialist worked in the kitchen for about two months, observed their work routines, talked with the staff what the problem is and how they can solve. Consequently she reduced the paperwork so that only one form would be required for each work station.

Quality certification is a key success factor in the automotive component industry, because automotive manufacturers do not work with suppliers who do not have appropriate certificates. **Suspension Auto** is the company that owns most certificates, out of all six case companies. The company currently has ISO 9001, ISO 19646, Q1 and 5S quality and was in the process of getting ISO 14001 in 2008. ISO and all other quality certifications are perceived as a "statutory obligation" as Quality Assurance Manager frames it, big customers look for them in company audits and for this reason these systems have to be implemented "seamlessly". The ideal driving QMS adoption at Suspension is attracting and pleasing customers. All these different QMS are adopted in order to sign deals with looked-for customers. Such an ideal has at least two consequences in operating QMS OLM. First, it creates problems in QMS application. Because the focus is not to internalise a particular QMS but to apply it well enough to attract new customers, the employees and the management are not very much interested in learning the QMS applications *per se*, but mostly do whatever is required to do mechanistically. This attitude leads to the second consequence; because the management and employees do not seize the learning opportunities arising from using various

[3] Hazard Analysis and Critical Control Point **(HACCP)** is a systematic preventive approach food safety that potential food hazards as a means of prevention rather than finished product inspection.

QMS on a day-to-day basis Suspension most of time end up learning from its failures. Weekly quality meetings that are held to evaluate important quality issues arisen during the last week finish off by generating several quick fixes rather than pondering on permanent solutions to prevent that problem happening again.

But not all organisations perceive ISO and other QMS as another tick in their customers' evaluation forms. **Accelerator Auto** operates in the same industry with Suspension and works with almost every automotive manufacturer that Suspension does. But while Suspension claimed that a company has to have 5S to work with Mitsubishi we saw that Accelerator was another supplier of Mitsubishi even though it did not have 5S certificate. This suggests that if you can meet the quality expectations of customers with your existing QMS the customer will not insist on one specific quality certificate. The important thing is to ensure continuous organisational improvement with the existing QMS. Accelerator Auto perceives quality certification as a means of increasing and expanding their technological competencies and making the organisation more formal and professional. For example, the Quality Assurance Manager stated:

> "We had ISO 9001 since 1998. Last year we got ISO 16949. We haven't adopted it because of customer coercion. We wanted it. Why? Because we wanted to open ourselves to improvement, 16000 is the latest quality system. We wanted to get to latest system and to keep abreast with it. You may call it quality policy but we really want to use it as the next level of development in terms of quality and customer-centredness."

As different QMS applications in six organisations show, what is deemed relevant and important by the senior management and their motivations and expectations while designing and operating an OLM is an important factor for ensuring productive organisational learning. In the case of tourism industry, even though the two general managers shared the same thought and perception about the applicability of ISO in the tourism context as a result of their ideals and business priorities they developed different strategies to deal with it. Similarly, although in the olive oil industry QMS was not a key success factor, thus was not critical for competitive advantage (as evidenced with Crystal's competitive position in the industry for over 75 years), Gold Oil adopts and systematically implements QMS because such knowledge was valued for organisational improvement and renewal.

5. DISCUSSION

OLMs can be considered as a learning strategy (Beer et al. 2005) the organisation implements to build capabilities in order to survive and thrive within external environments with varying degrees of change. This strategy needs to be formalised in the shape of various learning mechanisms as a first step guaranteeing learning. Not having any structured OLMs (e.g. a training programme) almost guarantees no organisational learning. The mere existence of OLMs does not guarantee beneficial learning outcomes in term of increased competitiveness and organisational renewal or improved organisational capabilities. The discussion throughout Section 4 revealed that the internal structure of an OLM carries the potential to appreciate divergence among constituent parts of that OLM surfacing some important understandings about the relationship between the performance of the OLM and emerging learning outcome. As a result this work arrives as 2 types of OL systems: *Participative Learning Systems* and *Expert Learning Systems*.

Based on the research data it is found that organisations which are more successful in their innovation and change efforts have highly *participative learning systems* which enable

knowledge sharing at departmental and organisational level. This type of system provides easy access to all organisational members where organisation provides an open, supportive and information seeking culture that makes informal and formal exchange of information, knowledge and expertise possible. All organisational members who are knowledgeable or interested in the area of innovation are in charge of scanning and acquiring the relevant knowledge and communicating and implementing this knowledge through a series of participative OLMs. Enhancing and extending the knowledge base is deliberately and thoroughly pursued by management. In order to cope with fluidity in industry, participative learning systems have people-intensive approaches in order to maximise flexibility. This is sustained by individual initiative and direct participation in various learning initiatives. The distinctive feature of participative learning system is that the information acquired by different agents does not stay at individual domains. There are formal mechanisms in place that instil the habit of sharing between the members of the organisation and helping them to sustain these habits of mutual learning and informing. The OLMs are structured is a way that people continuously share knowledge and learn from each other.

Expert learning systems are dominated by people who typically occupy key directorial positions in the organisation's structure. These professional, authorized experts in whom the relevant knowledge is embodied act as key brokers of organisational knowledge. There are formal knowledge acquisition and organisational learning mechanisms and systematic procedures developed to guide learning and innovation efforts of the company. Organisations express appreciation towards learning and new knowledge, but when the learning instances are examined it is seen that top and middle managers have full access to the privileges provided by the system. Expert learning systems do not pool together all the knowledge and expertise of all relevant organisational members and the system relies on the experts to scan and acquire the necessary knowledge and accumulate learning. The purpose and direction of knowledge acquisition and learning is usually driven by a certain problematic situation or crises. In general, the company edges towards external knowledge sources when its internal resources (i.e., the knowledge owned by the experts) are no longer adequate and functional. From this perspective it can be concluded that the learning strategy of the organisation is reactive, that is new learning sources are supplied only if the situation requires.

Expert learning systems are characterised by a more bureaucratic structure where every member needs to go through a series of approvals from the line manager, the department director and the HR manager so to participate in external and internal learning opportunities and training initiatives. In a participative learning system the speed and efficiency of learning and new knowledge acquisition initiatives are independent from the authority of specific individuals; this system is capable of self-organising its learning and innovation initiatives within the limits of discretionary authority delegated by the management to employees from all hierarchical levels. The existing procedures and mechanisms exhibiting low flexibility inhibit the extension of the knowledge base represented by the newcomers and existing experts.

6. CONCLUSION

Looking at specific ways in which OLMs are constructed takes us further in understanding under which conditions and in what environments OLMs produce higher-levels of learning. In describing the ways OLMs are designed and implemented this work identifies 3 central elements: rules and procedures, co-creation of knowledge and valuation of knowledge by

senior management. These elements have a mediating role in predicting the way in which OLMs enable targeted learning outcomes. The traditional and standardised OLMs can become distinctively more dynamic and generative if necessary practices are put in place as in the case of innovator organisations. The key attribute of these participative OLMs is they provide semi-structures so that organisational members can focus their attention to their individual capability development needs and make sense of their individual learning experiences by focusing on the implications for organisational development and learning while the management can still control these mechanisms so that the mechanisms constituting the learning strategy of the organisation will exhibit some coherence. Such an approach provides sharper insights into the genesis and consequences of learning processes with appropriate empirical support.

In addition, at a broader theoretical level, we reject deterministic approach to organisational capability as the final outcome of a single set of OLMs. In terms of organisational capabilities it raises the questions about how to manage OLMs to create more dynamic and generative organisational capabilities. While certain individual capabilities like technical and professional skills emerge from the combination of OLMs, the organisational learning outcome attached to a particular OLM does not result from, but is element of the context and routines related to governance and values embedded in it.

REFERENCES

Alavi, M. and Leidner, D. (2001) Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly,* 25(1): 107-136.

Argote, L., McEvily, B. and Reagans, R. (2003). "Managing knowledge in organizations: an integrative framework and review of emerging themes". *Management Science*, vol. 49, no. 4, pp. 571-582.

Argyris, C., and Schon, D. A. (1978). *Organizational learning*. Reading, MA: Addison-Wesley.

Argyris, C., and Schon, D. A. (1996). *Organizational learning II: Theory,method and practice.* Reading, MA: Addison-Wesley.

Baird, L., Henderson, J. C. and Watts, S. (1997). "Learning from action: an analysis of the center for army lessons learned (CALL)". *Human Resource Management*, vol. 36, no. 4, pp. 385–395.

Barr, P. S., Stimpert, J. L. and Huff, A. S. (1992), "Cognitive change, strategic action, and organizational renewal". *Strategic Management Journal*, vol. 13, no. 1, pp.15–36

Beer, M., Voelpel, S. C., Leibold, M. and Tekie, E. B. "Strategic management as organizational learning: developing fit and alignment through a disciplined process". *Long Range Planning*, vol. 38, no. 5, pp. 445-465.

Bessant J. and Francis, D. (1999), "Developing strategic continuous improvement capability". *International Journal of Operations and Production Management*, vol. 19, no. 11, pp.1106 - 1119

Carroll, J. S. (1995). "Incident reviews in high-hazard industries: sense making and learning under ambiguity and accountability". *Organization Environment*, vol. 9, no. 2, pp. 175-197.

Cyert, R. M., and March, J. G. (1963), *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.

Daft, R. L., and Weick,K. E. (1984). "Toward a model of organizations as interpretation systems". *Academy of Management Review*, vol. 9, no. 2, pp. 284-295.
Deming, E. W. (1988). "Improvement of quality and productivity through action by management". In M. Tushman and W. Moore (eds.), *Readings in the management of innovation*, New York: Harper Business.
DiBella, A. J., Nevis, E. C., and Gould, J. M. (1996), "Understanding organizations learning capability". *Journal of Management Studies*, vol. 33, no. 3, pp. 361-379.
Easterby-Smith, M. (1997), "Disciplines of organizational learning: contributions and critiques". *Human Relations*, vol. 50, no. 9, pp. 1085-1113.
Edmondson, A. and Moingeon, B. (1998), "From organizational learning to the learning organization". *Management Learning*, vol. 29, no. 1, pp. 5-20.
Edmondson, A. C. (1996). "Learning from mistakes is easier said than done: group and organizational influences on the detection and correction of human error". *Journal of Applied Behavioral Science*, vol. 32, no. 1, pp. 5-28.
Eisenhardt, K., and Martin J. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, vol. 21, pp.1105-1121.
Ellis, S., and Shpilberg, N. (2003). "Organizational learning mechanisms and managers' perceived uncertainty". *Human Relations*, vol. 56, no. 10, pp. 1233-1254.
Feldman, M. S. and March, J. G. (1981). "Information in organizations as signal and symbol". *Administrative Science Quarterly*, vol. 26, no. 2, pp. 171-186.
Fiol, M. C. and Lyles, M. A. (1985). "Organizational learning". *Academy of Management Review*, vol. 10, no. 4, pp. 803-813.
Garvin, D. A. (1993), "Building a learning organization". *Harvard Business Review*, vol. 73, no. 4, pp. 78-91.
Ghoshal, S. (1987). "Global strategy: an organizing framework". *Strategic Management Journal*, vol. 5, pp. 425-440.
Gourlay, S. (2006) Conceptualizing knowledge creation: a critique of Nonaka's theory. *Journal of Management Studies*, vol. 43, no. 7, pp. 1415-1436.
Gulliver, FR (1987), "Post-project appraisals pay", *Harvard Business Review*, vol. 65, no.2, pp.128-132.
Hamel, G. (1991). "Competition for competence and inter-partner learning within international strategic alliances". *Strategic Management Journal*, vol. 12, no. 1, pp. 83-104.
Hedberg, B. (1981). "How organizations learn and unlearn?". in P. C. Nystrom and W. H.
Starbuck (eds.), *Handbook of organizational design*, London: Oxford University Press, pp. 8 27.
Huber, G. P. (1982). "Organizational information systems: determinants of their performance and behaviour". *Management Science*, vol. 28, pp. 135-155.
Huber, G. P. (1991), "Organizational learning: the contributing processes and the literatures". *Organization Science*, vol. 2, no. 1, pp. 88-115.
Jorna, R. (1998). "Managing Knowledge". *Semiotic Review of Books*, vol. 9, no. 2. http:// www.chass.utoronto.ca/epcs/srb/srb/managingknow.html (accessed 28 February 2011)
Kane, G. C. and Alavi, M. (2007). "Information technology and organizational learning: investigation of exploration and exploitation processes". *Organization Science*, vol. 18, no. 5, pp. 796-812.
Kim, Daniel H. (1993), "The Link between Individual and Organizational Learning". *Sloan Management Review*, vol. 35, no. 1, pp. 37–50.
Kogut, B. (1991). "Joint ventures and the option to expand and acquire". *Management Science*, vol. 37, no. 1, pp. 19-33

Levinthal, D. A. and March, J. G. (1993), "The myopia of learning". *Strategic Management Journal*, vol. 14, no. 2, pp. 95–112.
Levitt, B. and March J. G. (1988), "Organizational learning". *Annual Review of Sociology*, vol. 14, pp. 319-340.
Lipshitz, R., and Popper, M. (2000). "Organizational learning in a hospital". *Journal of Applied Behavioral Science*, vol. 36, no. 3, pp. 345-361.
Lipshitz, R., Popper, M., and Friedman,V. A. (2002). "Multi-facet model of organizational learning". *Journal of Applied Behavioral Science*, vol. 38, no. 1, pp. 78-98.
Lipshitz,R., Popper,M., and Oz, S. (1996), "Building learning organization: the design and implementation of organizational learning mechanisms". *Journal of Applied Behavioral Science*, vol. 32, no. 3, pp. 292-305.
Miles M.B. and Huberman A.M. (1994). *Qualitative analysis: an expanded sourcebook*, Thousand Oaks, Calif.: SAGE Publications.
Nonaka, I. (1991). "The knowledge creating company". *Harvard Business Review*, vol. 69, no. 6, pp. 96 - 104.
Nonaka, I. and Konno, N. (1998). "The concept of 'Ba': building foundation for knowledge creation". *California Management Review*, vol 40, no.3, pp. 40-54.
Oliver, J. (2009) "Continuous improvement: role of organisational learning mechanisms", *International Journal of Quality and Reliability Management*, vol. 26, no. 6, pp.546 – 563.
Popper, M. and Lipshitz, R. (2000). "Organizational learning: mechanisms, culture and feasibility". *Journal of Management Learning*, vol. 31, no. 2, pp. 181-196.
Popper,M. and Lipshitz,R. (1998). "Organizational learning mechanisms: a cultural and structural approach to organizational learning". *Journal of Applied Behavioral Science*, vol. 34, no. 2, pp. 161-178.
Prahalad, C.K. and Hamel, G. (1990). "The core competence of the corporation", *Harvard Business Review*, vol. 68, no. 3, pp. 79–91.
Schechter, C. and Feldman, N. (2010) "Exploring organizational learning mechanisms in special education", *Journal of Educational Administration*, vol. 48, no. 4, pp.490 – 516.
Schechter,C. (2007). Learning mechanisms in schools: Conceptualization and empirical evidence. *Educational Theory and Practice*, vol. 29, no. 1, pp. 47-59.
Senge, P. (1990), *The fifth discipline: the art and practice of the learning organization*. Doubleday, New York.
Shani, A. B. and Mitki, Y. (2000). "Creating the learning organization: beyond mechanisms". in R. T. Golembiewski (ed.), *Handbook of Organizational Consultation*, Marcel Dekker Inc.
Simon, H. A. (1991). "Bounded rationality and organizational learning". *Organization Science*, vol. 2, no. 1, pp. 125-134.
Teece, D. J., Pisano, G. and Shuen, A. (1997). "Dynamic capabilities and strategic management". *Strategic Management Journal*, vol. 18, no. 7, pp. 509–33.
Virany, B., Tushman, M. L. and Romanelli, E. (1992). "Executive succession and organization outcomes in turbulent environments: an organization learning approach", *Organization Science*, vol. 3, no. 1, pp. 72-91.
Weick, K. (2000). *Making sense of the organization*. Boston: Blackwell.
Wohlstetter, P., Smyer,R., and Mohrman,S. A. (1994). "New boundaries for school-based management: the high involvement model". *Educational Evaluation and Policy Analysis*, vol. 16, pp. 268-286.
Zollo, M. and Winter, S. G. (2002). "Deliberate learning and the evolution of dynamic capabilities". *Organization Science*, vol. 13, no. 3, pp. 339–51.