BARRIERS OF ON-THE-JOB LEARNING[1]

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ABSTRACT

There is an ever increasing pressure on organizations to meet the requirements of a learning organization; hence the competence to acquire knowledge and learn has become an important source of competitive advantage. The focal point of present paper lies in the intersection of social context of knowledge sharing and the technological support of ICT tools. Authors found that ICT tools can enhance and inhibit organizational learning ability at the same time. For the successful introduction of a new tool not only its compliance with the existing systems must be ensured, but also the match with both the organizational members' cognitive ability to learn how to fully utilize the tool as well as their motivation to do so.

KEYWORDS: On-the-Job Learning, Knowledge Sharing, Information and Communication Technologies, Motivation, Cognitive Capabilities

INTRODUCTION

In today's complex, dynamic, knowledge-based society, not only the forms of learning have been changed but also the places of learning. The role of workplace in the learning process is becoming more important. There is more and more pressure on organizations to meet the expectations of a learning organization, however, on-the-job learning is often an unconscious, unpremeditated and unplanned process (Marsick, 2003) that is embedded in the everyday working (Eraut, 2000; Grant, 1996).

Nowadays, the knowledge has become an important resource and also a determinant market good. It is about knowledge markets, knowledge capital, and knowledge transfer (Balaton et al., 2010) and organizations must invest into the acquisition of knowledge in order to stay competitive over the long-term (Szabo et al, 2011).

Knowledge sharing is tightly connected to learning; that is why it is highly important to examine which organizational framework facilitates or inhibits organizational learning. This paper focuses on intra-organizational learning. Lytras and Sicilia (2005) have reviewed the existing literature in order to separate knowledge and learning from one another and came up with 5, distinct pillars: (1) *Knowledge and learning objects* – knowledge as an articraft and with learning as content; (2) *Knowledge and learning processes* – knowledge as a process and life cycle and learning as a flow of instructions; (3) *Knowledge and learning strategies* – knowledge in social context, whatever it is about: individuals, groups, organizations, networks, or virtual or personal connections; (4) *Knowledge and learning systems* – knowledge facilitators: it is about every technological development, application, service. Learning and knowledge systems can be described with socio-technical characteristics; and (5) *Knowledge and learning performance* – This pillar includes control mechanisms, standards, and measurement, so it's about measuring performance.

The focal point of present research lies in the intersection of social context of knowledge sharing (the 3rd pillar: knowledge and learning strategies) and also the socio-technical background of knowledge sharing (4th pillar: knowledge and learning systems). There is a gap in the literature as only little effort was made to study both pillars parallel. While it is acknowledged that knowledge sharing and learning are crucial to organizational success, as well as that information and communication technologies play an important role in facilitating knowledge sharing, there is still a lack of clarity regarding how such technologies can be best deployed (Barrett *et al.*, 2004). Consequently, the central question of this research is that which intra-organizational factors influence (facilitate vs. inhibit) on-the-job learning?

The Social Context of Learning on-the-Job

Granovetter (1992) attracts attention to the structural and relational embeddedness in his work about networks. Granovetter proposed that networks are heterogeneous in terms of personal relationships in terms of density as well as the existence or nonexistence of relationships between certain nodes.

Hortoványi and Szabo (2006) have also formed their interpersonal learning model based on the work of Granovetter (1972). They claim that knowledge sharing is influenced by the quality (positive or negative) as well as the strength (weak or strong) of the relationship between the parties. According to their model 4 different types of learning modes are identified: collaborative, cooperative, constrained, and competitive learning. In line with their model, Ensign and Hébert (2010) confirmed that superficial personal and professional interaction have a negative effect on knowledge sharing; while the higher the level of emotional linkage the more likely the knowledge sharing between individuals will happen.

Nahapiet and Ghoshal (1998) identified 3 dimensions which determine together the output of knowledge sharing at organizational level: structural-, cognitive-, and motivational. Authors attempt to revise aforementioned dimensions of Nahapiet and Ghoshal in order to extend our understanding of on-the-job learning (Figure 1).
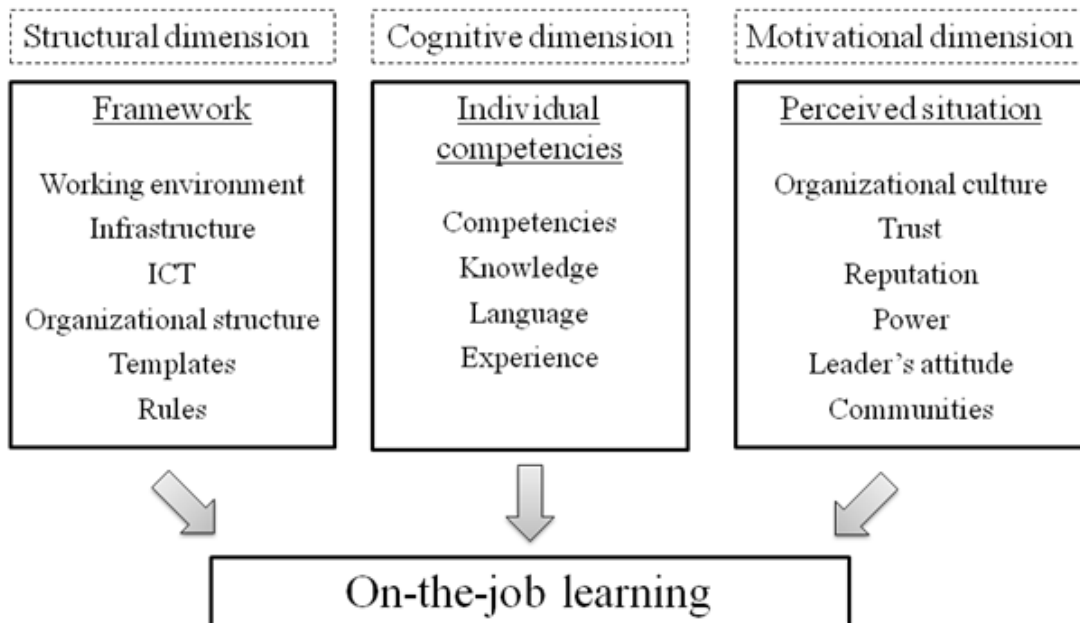
Figure 1: Research Model

The Structural Dimension

The first dimension of interpersonal relationships is the structural dimension that sets the conditions for knowledge sharing. Computer-based information technologies play an important role in how organizations store knowledge (Anand *et al.*, 1998; Huber, 1991; Stein and Zwass, 1995) and make it accessible and retrievable for their members (Olivera, 2000). That is, they are IT-based systems developed to support and enhance the organizational processes of knowledge creation, storage, retrieval, transfer, and application (Alavi and Leidner, 2001).

Barrett *et al.* (2004) proposed that softer issues such as motivation and the learning context are crucial in forming a supportive "climate" for knowledge sharing. In accordance with them, Van den Hooff and de Rider (2004) emphasized that the use of IT systems doesn't influence directly the knowledge transfer process; it has only an indirect effect through the manifestation of organizational commitment. However, if the climate is good, then technology has a central part to play in providing the media and infrastructure for learning in and between knowledge communities. Relying upon these findings, they identified (1) the learning and knowledge transfer supportive context and (2) integrated ICT development and usage as key characteristics of a successful knowledge community.

The Cognitive Dimension

The cognitive dimension refers to the ability of organization members to share their knowledge with each other. It is about shared codes, language and narratives. Connected to the cognitive dimension of knowledge transfer, for example, Riege (2005) mentioned the existence of proper individual writing and oral communications skills as a barrier of knowledge transfer.

Schon (1983, p. 271) points out that intra-organizational occupational communities can be expected to have different domains of substantive knowledge and heterogeneous ways of learning (Van Maanen and Barley, 1984; Boland and Tenkasi, 1995). The knowledge sharing difficulties of communities are rooted in differences in their language, the locus of their practice, and their conceptualization of the product.

The Motivational Dimensions

The third dimension is connected to motivation that is rooted in trust, norms, and identification. Many researchers studied on-the-job learning and contrast it with daily work routine. Edmondson, Bohmer, and Pisano (2001) concluded that solely working day to day and as such performing tasks as usual would not result in learning. It will result in, as they call it, execution-as-efficiency. They also claimed that learning infrastructure and psychological safety is both needed in order to motivate individuals to share ideas or suggestions (Bunderson and Reagans, 2011).

Riege (2005) and later Tarody (2012) proposed that the leader has a significant role in creating a culture that facilitates knowledge sharing, which includes the possibility to make a mistake and also the learning from mistakes.

METHODOLOGY

The central question of the research is that which intra-organizational factors do influence on-the-job learning. In order to answer the question, researchers applied exploratory research methodology including on semi-structured interviews, document analysis, and observation.

Data Collection

Researchers applied qualitative, explorative research based on case studies and individual interviews. According to Yin (1994), case study method is recommended when the researcher tries to find answers for "how"

and "why" type of questions about a present occurrence. The applied case study research is based on multiple cases, where several interviews were made within each organization: the middle and top managers, as well as frontline employees. The sample of companies was selected by purposive sampling. As suggested by Mason (2002:117), the aim of theoretical, purposive sampling is that the researchers select samples in a way that enables them to compare the companies significantly in accordance with the analyzed questions, the theory, and the intended explanations as well.

Present researcher is built on judgmental sampling in order to meet the following requirements:

- Size – have both small- and bigger-sized organizations.

- Age –have a young organization and also a company that has operated for decades.

- ICT tools endowment – have both many ICT tools available vs. only a limited number

- Industry – have both knowledge-intensive and non-knowledge-intensive environment.

- Innovativeness – have both innovative and less innovative organizations.

- Need for coordination – sufficient number of employees and hierarchical level is present which creates demand for managers to coordinate the operation.

The results of this research are mainly based on semi-structured interviews. Beyond interviews, researchers analyzed organizational documents and observed managerial meetings as well.

Data Analysis

In summary, 40 interviews were recorded within 3 organizations. The average length of an interview was two to three hours. Thereafter, all the recordings were converted into text files word for word. Researchers invested a great effort to capture each word as well as pausing in typing the text. Consequently, the context in which every interview was made (location, atmosphere, including the perceived mood, emotions, and gestures of interviewees) was also recorded. Researchers applied QSR NVivo software for analyzing the data. During the analysis, the primary codes were the dimensions of their theoretical model.

INTERPRETATION OF THE CASES

The Profession-Oriented Organization

The first profession-oriented organization works in agriculture; its core activities embrace production and trade as well. It is a medium-sized company and has been operating for more than twenty years under the direction of the owner-founder. The core activity of the organization does not require a large use of ICT tools; thus, the endowment of the organization is low in this respect.

The profession-oriented organization puts the professional knowledge in first place during its everyday activity: *"Only the knowledge that is connected with agriculture is valued in the organization" (5. interviewee).* The professional knowledge is elemental; the organization is less open to newness, for instance, in the application of ICT tools*: "I cannot rely 100% on the information technology. And it is always proven to be right" (11. interviewee).* The new knowledge appears first of all in the technology connected to the main activity and also on the costumer scale, but it stays isolated at people who are competent in that field. The majority of the employees has large professional knowledge but do not have professional leader skills and management qualification. The willingness to change is low; it is rare to overthink processes and come up with new ideas or make proposals.

The organization has an ERP tool, however, it is not fully utilized. That is because organization members do not consider it important and are not able to use neither the system nor other ICT tools: *"I have a colleague who is not even able to send an e-mail" (5. interviewee).* Besides, they are not interested in sharing certain information: *"This is their little castle and they are not willing to change anything" (6. interviewee).* That is why the storage of knowledge is minimal; the knowledge is individually stored (for example, in booklets or Excel tables) not organizationally. Since new knowledge is created slowly in the organization, they are not forced to store knowledge. The knowledge that is needed for employees to do their everyday work is already a routine for years. They never question those routines.

The knowledge transfer in the organization is quite infrequent. This is triggered by the fact, that majority of the employees are not interested in learning new things, especially if it is outside of their expertise: *"in our business we cannot use some templates and basic programs, that is not going to work" (3. interviewee).* The results show that the majority of employees are not motivated in general; neither in sharing their knowledge, nor in transferring the information have they possessed.

The System-Oriented Organization

The second, system-oriented company competes in the automotive industry as a significant car dealer. The studied organization is a medium-sized company, has about eighty to one hundred employees and four premises. The organization is a mature company that is operating efficiently but finds it very difficult to start new ventures in order to grow. The organization invested into several ICT tools. The investments – most of the time – were made in order to meet the requirements of big partners.

The system-oriented type is characterized by the intense use of organizational and IT systems that define its processes and everyday operation. As a result, employees spend a great part of their time fulfilling their administrative obligations. The effect of it is that the organization stores a lot of data and information in its systems. For example, there is tremendous information available about customers in different forms, which could be integrated and used for innovative activities, such as cross-selling. As the information never gets connected, the innovative ideas are hardly if at all going to be realized. Employees in general refuse to invest their time and energy to higher-level information sharing and learning. They tend to be reluctant to revise or reconsider for example their existing internal processes (or solve the root of recurring problems) in order to make them more efficient or effective. That is why, many of the respondents complain about recurring pains that are caused by problems which are never fully solved and as such they need constant or frequent attention.

The Task-Oriented Organization

The task-oriented type is an organization dealing with consultancy in the service sector. Due to its size, it is defined as a small enterprise and employs twelve persons. The studied organization is a start-up; it has been working for one year in a formal way. The average age of managers is thirty-one while employees' ages are an average of twenty-seven years. The firm is working on the basis of a project organization. As for the use of ICT tools, the company applies a few, mainly open-source applications.

The management of the organization focuses on forthcoming tasks and keeps on thinking over which tool or system can help in simplifying tasks and solving problems. ICT systems and tools used by the organization are adjusted to requirements of the firm. The organization's main profile is corporate consultancy, which is a knowledge-intensive activity. It means that the core activity of the company requires deep knowledge.

Regarding the employees, *"money is not the main motivation factor, the point is the willing to learn, develop" (2. interviewee).* There is also a strong emphasis on "up or out" philosophy. If someone cannot develop and grow as a person, he or she must leave. The culture demands from everyone to be interested in learning new, unusual things.

Creating new knowledge is directly the role of the management, but indirectly, employees on lower organizational levels also contribute to this. Created knowledge is manifested in new project offers while the organization members try to learn together from each work completed. The most important take-away from each project is stored digitally available for everyone. A new employee recalls: *"I had to catch up quickly, because the first part of the project was already done when I joined the team. This was very easy due to the common folder structure where I had found everything... it was just like getting familiar with regulations; only I had to look into the proper folder" (9. interviewee).*

The knowledge transfer in the examined organization is realized vertically and horizontally as well. On the one hand, this is supported by physical work environment, that is, they have such an office where members of the organization can see each other and sit at a common table, so working environment itself promotes communication between one another. Besides, the common cognitive background of members (similar studies) supports effective communication that assists knowledge transfer: *"Here we use the same words because we have to" (3. interviewee).* Last but not least, learning is part of organizational culture; that is why all employees of the organization are open to adopt and transfer knowledge; there are no problems of trust and power: *"This is not a typical workplace; people hold together and help each other, and trust is important here" (9. interviewee).*

Comparison of Organizations

Structural Dimensional Comparison

In the profession-oriented case, we can see that the framework essentially supports on-the-job learning; organization has available and potentially useable IT tools and systems. However, on-the-job learning is blocked by improper use of systems, and its causes come from the other two dimensions (individual skills and perceived situation factors). Therefore, the ICT tools do not play a supporting role of knowledge transfer and on-the-job learning.

In the system-oriented case, it can also be determined that IT systems and tools are available for knowledge transfer. However, these cannot support on-the-job learning properly due to the isolated operation and duplications caused by over-administration. The organization has more premises; the communication and knowledge transfer between them mean a further challenge to the organization.

The task-oriented organization uses much less tools than the other two as it comes to a smaller organization. The organization has an amount of tools that perfectly meets present requirements; it tends to use its systems for supporting on-the-job learning. During operation, they use many electronic templates that are easy to use. On-the-job learning works well in the structural dimension, but there are risk factors too, for instance, in the fact that employees use their own hardware.

Cognitive Dimensional Comparison

In the profession-oriented case, the imperfections in cognitive dimension are fairly bound on-the-job learning. There is a barrier both in the management knowledge, in the necessary knowledge to work, and in the proper use of ICT tools. There are huge differences between employees regarding the use of ICT tools.

In the system-oriented case, researchers identified several factors supporting on-the-job learning: the common terminology, shared language, the employees' ability to use IT systems expected by importers, and the fact that people in

similar positions have similar knowledge. The organization, regarding its core activity, can operate in a relatively effective way and is able to utilize its opportunities in these fields. However, they find it difficult to explore new possibilities. The majority of middle managers barely have the ability of independent problem-solving, and they don't even have proper economic and managerial knowledge. As for the organizational and individual learning as well, this means a significant drawback.

In the task-oriented case, the significant role of cognitive dimension can be established in on-the-job learning. All employees of the examined organization have the same study background and are at the similar age; this makes communication and learning much easier. They can often finish each other's sentences. Besides, on its own admission, the organization tends to hire persons who are open and able to improve and learn.

Motivational Dimension Comparison

As for perceived situation, researchers discovered several power games in the profession-oriented case as a significant barrier to on-the-job learning. The corporate culture cannot be characterized by learning, especially not by trial and error learning. Employees would rather hold their knowledge to retain and enhance their current authority positions or to gain a better one. This dimension is tightly connected with cognitive dimension.

The system-oriented case is also an example for occurrences where organizational culture partly facilitates on-the-job learning while also inhibit it. While organizational members are used to quick decision making and problem-solving; furthermore, the excessive administration requirement reduces their time available for important things, such as improving internal processes as well as business-as-usual activities. In addition, most of the IT infrastructure is hardly if at all connected, hence there is an inherent frustration regarding the use of technology. Finally, power distance has grown between the middle and upper management, which is a barrier for information flow. The task-oriented case was a good example for an organizational culture in which the the continuous learning and knowledge sharing is part of. This also means that more experienced employees are opened to share their knowledge with their less experienced colleagues. The employees trust each other. This safe atmosphere means a good basis for individual and organizational development too. Table 1 summarizes the three cases regarding framework, individual skills, and perceived situation.

Table 1*: Influencing Factors of on-the-Job Learning Based on Case Studies*

	On-the-Job Learning	Framework	Individual Competencies	Perceived Situation
Profession-oriented	*Facilitator*	Shared office, open spaces, potentially useable tools and systems	Shared terminology, language, advanced agricultural knowledge and experience	CEO is open to learn, agricultural knowledge is valuable at organizational culture level
	Inhibitor	There are no innovative ICT tools, fieldwork and office work are separated	Lack of managerial knowledge, constraints in usage of ICT tools, employees don't understand the potential in the existing systems	Power games, Keeping back knowledge and information, fear in retaining positions, seniority
System-oriented	*Facilitator*	Open spaces in the office, usage of IT systems, ICT tools and templates	Shared terminology, language, learning from importers in system usage and reporting	CEO is open to learn, innovate, he has many good ideas, due to the importers' expectations, they have an adapting, learning organizational culture
	Inhibitor	There are too many systems, they don't communicate real time, lots of duplication	Lack of managerial knowledge and individual problem solving, they are able to use systems only for documenting	Increasing power distances, little, closed groups, frustration from overload usage of systems

Table 1: Contd.,				
Task-oriented	*Facilitator*	One shared office, they use easy but innovative ICT tools that are enough for their needs	Shared university background, terminology, language, diverse personalities, proper managerial knowledge	Trust, safe, familiar atmosphere, learning organizational culture, helping each other, no fear from losing position
	Inhibitor	Employees use private tools, constraints in the shared database	Excessive employee homogeneity in professional background	Hard to fit in with another background

DISCUSSIONS

Researchers interpreted the three case studies as different archetypes. The first type (profession-oriented) pays attention not to ICT tools and learning but to the present professional excellence. The processes of the second type (system-oriented) are significantly determined by the information system and tools used in the organization. The third type (task-oriented) focuses on the tasks and tries to match its information and communication technology and context of learning to the tasks.

Researchers summed how the individual dimensions, the framework (structural dimension), the individual competences (cognitive dimension), and the perceived situation (motivational dimension) influence on-the-job learning (Table 2). The "+" symbols show the degree of facilitation to on-the-job learning; the "-" symbols show the degree of inhibition.

Table 2: The General Effect on the Research Model Dimensions on on-the-Job Learning Based on Case Studies

	Structural Dimension	Cognitive Dimension	Motivational Dimension	On-the-Job Learning
Profession-oriented	+	— — —	— —	NO
System-oriented	— — —	+	—	NO
Task-oriented	+	+ +	+ + +	YES

According to the results, each dimension can be either a facilitator or an inhibitor in case of on-the-job learning. However, in order to effectuate on-the-job learning, each dimension has to be a facilitator; they should influence on-the-job learning simultaneously and jointly.

Results have important practical implications to identify:

- Every investment decision about purchasing new hardware (tablets, servers, smartphones, etc.) and software (applications, database manager programs, etc.) must be carefully considered in relation to existing tools and future demands. Moreover, the different systems needs to be integrated, otherwise there is the risk of resistance to use.

- ICT tools must be very carefully selected in order to make sure that it is in line with the tasks (task-oriented firm), or it can happen ad hoc (profession-oriented and system-oriented firm). In case of ad hoc structures, the revision of ICT tool degree, usage ability, and efforts for using them properly are especially important in order to reach the proper learning level.

- It is important to spend time on learning the proper use of any given tools. During training, special attention needs to be made for users' attitudes. They not only need to learn the new functionalities, but it is also equally important for them to understand why and which way this tool will help them in their daily work activities.

- In order to overcome the resistance to newness, it is not enough to introduce new ICT tools. The emotions must be handled carefully. This very likely will require the involvement of a change agent, who can prevent the escalation of resistance right at the beginning. Hence, authors believe that introduction of a new ICT tool is more likely to be a managerial challenge rather than a technical one.

CONCLUSIONS AND IMPLICATIONS

Researchers matched in their paper researches investigating the social context of knowledge transfer and information technology and created their own model. They examined this model throughout three case studies and identified three archetypes based on their orientation to ICT. They also introduced the facilitator and inhibitor factors of on-the-job learning along these.

An important result of this research is that it is not enough to focus on the types and degree of ICT tools in order to reach the proper level of on-the-job learning and organizational learning, but it is also important to analyze the mode of ICT usage along both the cognitive competences and the motivational dimension.

Therefore, if an organization wants to enhance its learning abilities, review its existing ICT tools and identify the ones which are not fully utilized, improperly used, duplicated, or outdated. Before introducing a new tool not only its compliance with the existing systems must be ensured, but also the match with the sub-culture and climate of the organization. Moreover, the organization members should have both the cognitive ability to learn the tool as well as the motivation to actually do so.

In case of training employees to use ICT tools for knowledge sharing it is important to address their fears or objection against the new technology at work. Furthermore, it is essential that the users do understand that such tools are necessary for their everyday activities, and ultimately they are more effective in performing certain tasks than without the support of these ICTs. This is necessary for motivating them for the use.

As to interpreting the research result, the limitation of the cases (size, age, industry, etc.) has to be taken into consideration. Further on, it is worth investigating the transition between the different types, so is exploring whether the learning constraints along the inhibitor dimensions can be overcome and how and what role ICT tools have in it.

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