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## Organizational learning and knowledge creation processes in SMEs

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*Nowadays, the business life for many companies is becoming increasingly complex and novel because of dynamic processes and rapid changes those are occurring in economy. In order to cope with fast changing environment organizations are forced to increase their knowledge base and thus learn continuously. Herein, organizational learning and knowledge creation processes are becoming of crucial importance if the organizations are to succeed. But, are these processes found in all enterprises?*

*Small and medium sized enterprises (SMEs) are playing an important role within Western economies. For instance, in the EU SMEs account for more than 50% of total employment. Hence, we investigated the organizational learning and knowledge creation processes in SMEs, as the textbooks mainly refer to larger enterprises.*

*I concluded that both processes were not found to a full extent as described in theory. The processes not only vary from one another, but they also vary from one enterprise to another. The empirical data clearly indicates that these findings are due to the lack of resources, knowledge and size.*

*The organizational learning process focuses more on explicit knowledge, as it is rooted in Western epistemology and therefore can be found to a comparably higher extent in the investigated enterprises than the knowledge creation process, which focuses more on the interaction between tacit and explicit knowledge, as it is rooted in the Eastern epistemology.*

**Keywords:** *creation processes, organizational learning, SMEs*

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## Introduction

When one reads today's economic news one can easily find reports about companies that lay off employees. Just think of ABB, Ericsson, and Fiat to name a few. All these companies are big players with several billion Euro turnover and tens of thousands employees. These companies are no longer producing jobs due to globalization and rationalization of processes. Without any doubt, the global economic situation shows signs of recession. Yet, there are also small and medium-sized enterprises (SMEs) that offer new employment opportunities. SMEs play a dominant role for employment and its development<sup>1</sup>. This is something that many western politicians have realized as well. Therefore, they put it on their agenda and they see SMEs as a solution to solve the serious problem of growing unemployment. For instance, Sweden established already in 1979 the Swedish Industrial Development Fund to encourage profitable growth and innovation in the sector of SMEs<sup>2</sup>.

In 2001, approximately 10 % of the Swedish labor force was self-employed and there existed about 500000 SMEs, which accounted for 59 % of total turnover and 57 % of the total value-added in the Swedish economy<sup>3</sup>. SMEs employ 60 % of the private sector workforce<sup>4</sup>. According to the joint employment, report 1999 of the EU the contribution of SMEs to employment in the EU varies from 56 % in Denmark, Finland and the UK up to 86 % in Greece<sup>5</sup>. Regarding Europe SMEs account for jobs for 69 million people<sup>6</sup>. Considering the period from 1988 to 1997 for the EU, the report indicates that employment was much more susceptible to economic fluctuations in large enterprises than in SMEs.

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<sup>1</sup> Landström/Frank/Veciana(Eds.), 1998, p. 3; Descy/Tessaring, 2001, p. 165

<sup>2</sup> Lois Stevenson, Anders Lundström, "Patterns and trends in entrepreneurship/SME policy and practice in ten economies", Stockholm 2001

<sup>3</sup> Ibid, p.318

<sup>4</sup> Ibid

<sup>5</sup>Joint Employment Report (1999)

<http://europa.eu.int/scadplus/printversion/en/cha/c10229e.htm> 31<sup>st</sup> May 2003, see appendix 3

<sup>6</sup> Landström/Frank/Veciana (Eds.) 1998, p. 3

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On the other hand, it is said that organizational learning and knowledge creation is the key to face future challenges as we have entered the so-called knowledge era. There are many theories that deal how to initiate organizational learning and knowledge creation<sup>7</sup>.

However, if one takes these theories into consideration they often require big efforts to be applied or implemented. These efforts result in the need for resources like human or financial, which in our point of view SMEs sometimes lack. The theories do not claim explicitly to deal only with large enterprises, however it is difficult to imagine whether SMEs really use these theories because of their limited resources and because they might not have the knowledge of the respective theories. Yet, if these SMEs want to compete, they have to face these challenges of the knowledge era as well.

## **Problem discussion**

As we, already discussed SMEs are very important for economic growth and development. Today Swedish policy focuses increasingly on the relationship between SMEs, which is based on the evidence that networks initiate and promote growth<sup>8</sup>. According to our knowledge, many authors have written about SMEs with main concern of the network. There is not much written about knowledge creation and organizational learning that occur in SMEs<sup>9</sup>. However, SMEs as opposed to larger enterprises are in a position of weakness and vulnerability to fail, particularly in the beginning of their development because the administrative environment is more and more complex, regarding legal and fiscal aspects. Besides this, SMEs face numerous difficulties, such as the lack of suitable training programmes to develop managerial capabilities, financial difficulties, difficulties in

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<sup>7</sup> Schein, Senge, Nonaka

<sup>8</sup> Stevenson and Lundström, p.319

<sup>9</sup> From 1974 to 1995, 35 theses in Sweden have been conducted in the field of entrepreneurship and small businesses none of them dealt with organisational learning or knowledge creation. (Johannisson, Landström, pp. 281-283 in: Landström/Frank/Veciana (Eds.), 1997, pp. 276-295

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influencing R&D programmes and difficulties to entry markets<sup>10</sup>. This indicates that SMEs have to deal with complexity on a large scale.

Considering the complexity and rapid changes that occur in the environment, SMEs need to focus on knowledge creation and learning processes in order to survive. We think that SMEs in general learn and create knowledge differently than large enterprises because they lack financial and human resources that large enterprises use to create knowledge and to learn. We assume that knowledge is the outcome of organizational learning. According to Nonaka and Takeuchi:

*“Creating new knowledge is also not simply a matter of learning from others or acquiring knowledge from the outside. Knowledge has to be built on its own, frequently requiring intensive and laborious interaction among members of the organization.”*<sup>11</sup>

This statement indicates that there is a close relation between knowledge and learning. As the people interact with each other, they will learn and therefore new knowledge is created. In order to create knowledge the process of learning that takes place when members of organizations share their skills must be reformed, enriched and translated to be related to the enterprise’s identity<sup>12</sup>. Taking the previous words into account it becomes clear that the individual members of organizations are the ones who learn and thereby create knowledge by sharing their skills. If individuals within the organization share their ideas, experiences, information and knowledge through discussions and mutual interactions then learning can take place<sup>13</sup>.

Nevertheless, one can argue that there is something that is not only the result of individual skills, take for example the orchestra that performs Beethoven’s symphonies. Even the most skilled professional violinist cannot perform a symphony on her own. Furthermore, it requires the collective performance of the bassist, the cellist, the trumpet player and all the other members of the orchestra as a group to enact the symphony. Hence,

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<sup>10</sup> Karin de Lind van Wijngaarden and Rob van der Horst, 1998 in: Landström, Frank, Veciana, 1998 p. 380

<sup>11</sup> Nonaka & Takeuchi, 1995, p.10

<sup>12</sup> Ibid, p. 11

<sup>13</sup> Probst & Büchel, p.9

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according to Cook and Yanow: “*Organizational learning, then, describes a category of activity that can only be done by a group. It cannot be done by an individual.*”<sup>14</sup>

However, these processes ensure organizations to keep their pace of developing and thus lead to sustainable long-term goal attainment. As knowledge is sometimes the only resource that is available the organizations needs to handle it with care and use it smartly. This knowledge can take shape in many ways. For instance, it is knowledge about customers or about production processes. It can be the result of formal education or intuition. If this knowledge can be embedded in the organization and become part of the social entity the organization and its members can use and benefit from it.

Only sustainable learning and knowledge creation will help to secure the long-term success of any enterprise. Therefore, SMEs need to make the knowledge available to the organization in order to use it. Organizational learning is then the process, which leads to organizational knowledge<sup>15</sup>. Yet, organizational knowledge is also the result of the knowledge creation process<sup>16</sup>. Accordingly, both processes may not be the same, but their result is comparable, as it is organizational knowledge. Hence, our interest is to find out to what extent the organizational learning and knowledge creation processes can be found in SMEs as described in theory.

## **Problem formulation**

Taking into consideration our problem discussion, we come to the following research question:

**Are the organizational learning and knowledge creation processes as described in theory also found in SMEs? If yes, to what extent and why?**

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<sup>14</sup> Cook & Yanow, p. 403, in: Shafritz & Ott, 2001, pp. 400-413

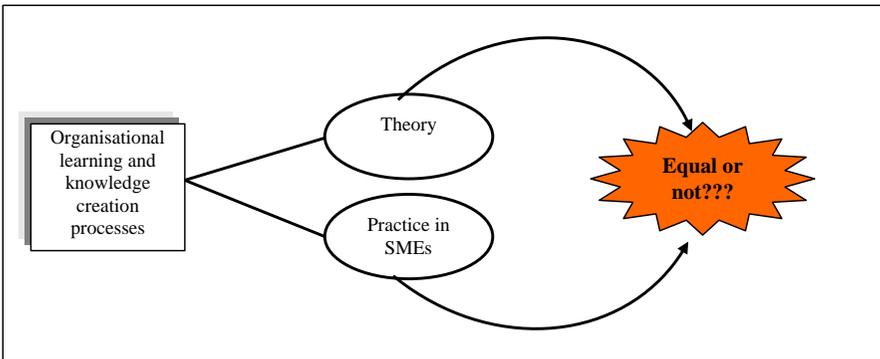
<sup>15</sup> Argyris & Schön, 1996, p. 15 f.

<sup>16</sup> Nonaka & Takeuchi, 1995, p. 56

## Purpose

The purpose of this paper is to explain to what extent organizational learning and knowledge creation processes are found in SMEs as described in theory, and why these processes are found to that extent.

In the following figure, we illustrate the relationship of our phenomenon. We are going to test the theoretical processes of organizational learning and knowledge creation in SMEs. Therefore, we will compare our analytical model with empirical findings in practice. When the organizational learning and knowledge creation processes are found in SMEs, they will also increase their long-term sustainability and profitability.



**Figure 1:** Our study phenomenon

## Claims/Hypotheses

H1: Organizational learning and knowledge creation processes are found to a full extent in SMEs.

H2: Organizational learning and knowledge creation processes are not found to a full extent in SMEs.

H3: Reasons that organizational learning and knowledge creation processes are not found to a full extent are due to a lack of resources, knowledge and size.

H4: Organizational learning and knowledge creation processes are not found at all in SMEs.

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## Scientific Research

Concerning our research, we apply the positivistic approach, because we see the world as descriptive, and phenomena can be explained and proved by observation. In order to investigate an event successfully in a positivistic way it is necessary for the researcher to go close and look at the world objectively. Considering the fact that the positivistic viewpoints are idealistic positions, it is very difficult to follow one strictly. However, we tried to stay as objective as possible. Except positivistic approach our research with hypothetical deductive view, which implies starting with the existing theory and then building an own model that afterwards based on the empirical research the theory model will be tested. Therefore, we tested the theoretical model, which represent the organizational learning and knowledge creation processes as described in theory. Also Since we are dealing with organizational learning and knowledge creation processes we used the qualitative research method of a case study. We argue that organizational knowledge is something relative and difficult to measure. What is knowledge for someone might be just information or data for someone else. Furthermore, our phenomena have a dynamic character, as they are processes and changes over time. Therefore, our research is based on qualitative research for it is easier to identify knowledge in personal interviews instead of quantitative surveys. Using interviews gave us access to gather qualitative information needed for our thesis. Furthermore, quantitative methods bear the risk of misunderstanding because questionnaires in English could be unclear to the respondents and clarification could not have been provided as opposed to the interview.

## Theoretical data collection

We collected theoretical data from different sources. We chose carefully the literature relevant to our project. We searched for literature about knowledge creation and organizational learning at the library in Växjö and used literature from previous courses. We also searched for SMEs' literature and tried to find related literature to organizational learning and knowledge creation. For data collection we used keywords, like, "knowledge

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creation”, “organizational knowledge”, “SMEs”, “Entrepreneurship”, “learning organizations”, “organizational learning”, etc.

## **Empirical data collection**

We randomly picked 3 SMEs that operate in the manufacturing industry but are of different size. These enterprises are Gnosjö Automatsvarvning AB, Växjöfabriken AB and Plast AB Orion. Of course, we could have chosen to investigate another industry. The reason why we focus on one industry is to exclude external influencing factors that might affect our study. We selected three SMEs because we do not want to compare just two enterprises. A third enterprise gives us opportunity to support our findings. In order to verify our findings a broader empirical basis would be better. But also due to the time constraints we limited our research to three companies.

## **Analytical model**

The purpose of this paper is to test to what extent the theoretical organizational learning and knowledge creation processes are found in SMEs and why it is so. The analytical models presented in the following lines will be tested by indicators, which have a qualitative parameter value (yes/no). We provide tables that indicate the extent of application of organizational learning and knowledge creation processes. We are aware that it is possible that our empirical findings do not match the suggested analytical model. On the one hand the findings may not fit with the suggested extents (maximum, high, medium, and low). On the other hand, the findings could vary from one to another investigated enterprise, which will limit our possibility to generalize our conclusion.

In order to gain more insights in the situation of SMEs, we will also investigate the actual amount of resources related to the two processes, the knowledge regarding both processes, and their size with regards to number of employees, turnover, and balance sheet total.

## The organizational learning process

The following table summarizes our theoretical findings of the organizational learning process in chapter 3.2. The categories in the left column of the table present “agents of learning”, which are a prerequisite to organizational learning. These agents have to overcome the “barriers to learning” in order to enhance “learning on the job” and “learning off the job”. Afterwards we present in table 3 how the extent of organizational learning is indicated.

**Table 1:** The organisational learning process

The organizational learning process	Indicators
Agents of learning	Individuals
	Elites
	Groups/communities of practice
	Systems
Barriers to learning	Skilled incompetence
	Defensive routines
	Fancy footwork and malaise
	Norms, privileges, taboos
	Information disorders
Learning on the job	Instruction, coaching
	Quality circles
	Decentralized learning/learning islands
	Interactive learning
	Teamwork
	Rotation
	Project work
	Vocational adjustments
	Continuous improvement processes
Learning off the job	Courses, Seminars
	Meetings/Events/Workshops
	Skills training centre/ teaching
	Institutions of higher education
	Benchmarking

We consider the “agents of learning” as the variable who can overcome the barriers to learning and establish organizational learning on and off the job. Our idea is to look for each variable by investigating the indicators in each researched enterprise. We assume the number of indicators vary in each enterprise.

Agents of learning – The agents should according to theory trigger organizational learning. We identified four groups of agents of learning, which indicate whether the learning is enhanced in SMEs or not.

Barriers to learning – According to theory there are five barriers to learning. We investigated these barriers in our research enterprises. We assumed that same barriers could not be found. If one looks at information disorders it might be not a problem in SMEs due to their size.

Learning on the job – It is much more likely that we can identify some of the nine indicators to learning on the job in SMEs as some of them are the traditional way of learning.

Learning off the job – The five indicators for learning off the job are typically found in enterprises. However, due to the lack of resources of SMEs we doubt that all of these indicators can be found in SMEs.

The following table illustrates the extent of organizational learning process in the investigated enterprises. The extent to which the organizational learning process is found is based on the amount of indicators found regarding each variable.

**Table 2: Extent of organisational learning process**

Variables	Extent of the organisational learning process found in the enterprises (indicators)			
	Maximum	High	Medium	Low
Agents of Learning	All	Individuals + 2	Individuals + 1	Individuals
Barriers to learning	0	0-1	2-3	4-5
Learning on the job	9	7-9	3-6	1-2
Learning off the job	5	4-5	2-3	1-2

All the above-illustrated variables will be counted by the amount of indicators, except for agents of learning because the agents of learning are the ones who can overcome the barriers to learning and establish learning on and off the job within the enterprise. In an enterprise that applies the maximum extent of the organizational learning process all the agents of learning can be found, as well as there are no barriers to learning. In this ideal situation, all the indicators of learning on and off the job can be identified, too. An enterprise where the organizational learning process is found to a high extent there can be found individuals and two more agents of learning. Furthermore, there should not be more than one barrier to learning and finally there will be seven to nine indicators for learning on the job and four to five indicators for learning off the job. If in an enterprise can be identified only individuals and groups/communities of practice and there are two to three barriers to learning. And if there are just three to six indicators for learning on the job and two to three indicators for learning off the job, then the organizational learning process is found to a medium extent. Finally, if there exist no agents of learning besides individuals and there are four or five barriers to learning there will be not more than one or two for each learning on and off the job, then the organizational learning process is found to a low extent.

## The knowledge creation process

In table 3 we summaries our theoretical findings regarding the knowledge creation process. The process consists of the knowledge assets derived from the SECI-process and enabling conditions, which promote the knowledge creation process. For each category, there are indicators that show the extent to which the knowledge creation process is found.

**Table 3:** The knowledge creation process

<i>The knowledge creation process</i>	<i>Indicators</i>
<b>Ba</b>	Originating Ba
	Dialoguing Ba
	Systemizing Ba
	Exercising Ba
	Autonomy

<b>Enabling conditions</b>	Fluctuation and creative chaos
	Redundancy
	Requisite variety
	Love, care, trust and commitment
<b>Experiential knowledge assets (socialization)</b>	Skills and know-how of individuals
	Care, love, trust and security
	Energy, passion, tension
<b>Conceptual knowledge assets (externalization)</b>	Product concepts
	Design
	Brand equity
<b>Systemic knowledge assets (combination)</b>	Documents, specifications, manuals
	Database
	Patents, licenses
<b>Routine knowledge assets (internalization)</b>	Know-how in daily operations
	Organizational routines
	Organizational culture

Subsequently we present the variables that are included in our model:

**Ba** – There are four types of Ba that facilitate the organizational knowledge creation process. Ba is the time and space where interactions take place. The four types of Ba represent the place where the knowledge spiral is generated. Without Ba the process of knowledge creation cannot be found in SMEs. Therefore, we sought for the four types of Ba in SMEs.

**Enabling conditions** – In our theoretical chapter we identified five enabling conditions of knowledge creation. These conditions promote the knowledge creation spiral. We assume that these can be found in SMEs; however, the question is whether they promote a knowledge creation spiral.

**Experiential knowledge assets** – This variable means sharing of tacit knowledge among employees, which is a prerequisite of knowledge creation. Furthermore, it indicates constant and mutual interaction and dialogue. Due to the fact that SMEs have a small number of employees we assume that sharing of tacit knowledge among employees is faster compared to larger

companies. Nevertheless, we will see in how far this sharing takes place and initiates the knowledge creation spiral.

**Conceptual knowledge assets** – This variable means transforming tacit to explicit knowledge, which is articulated by symbols, images and languages. These are based on concepts held by customers and members of the organization. Hence, we looked for the concepts held by the members of the SMEs and how they take into consideration, the concepts held by their customers.

**Systemic knowledge assets** – These indicators are rather easy to identify. This variable offers a context for the combination of existing explicit knowledge because explicit knowledge can relatively easy transmitted to a large number of people in written form. Therefore, the question will be whether such explicit knowledge exists in the SMEs and whether it is shared or not.

**Routine knowledge assets** – Here, the employees embody explicit knowledge that is communicated in written form. All of it leads to enhance tacit knowledge from explicit to tacit knowledge. These knowledge assets are easy to find because they are very practical. However, it is important to compare all the identified knowledge assets whether they comprise a knowledge creation spiral or not.

In the following table 4 the extent to which the knowledge creation process is found will be classified.

**Table 4:** Extent of the knowledge creation process

Variables	Extent of the knowledge creation process found in enterprises (indicators)			
	Maximum	High	Medium	Low
Ba	4	3-4	2	1
Enabling conditions	5	4-5	2-3	1

Experiential knowledge assets	3	3	2	0-1
Conceptual knowledge assets	3	3	2	0-1
Systemic knowledge assets	3	3	2	0-1
Routine knowledge assets	3	3	2	0-1

All the above-illustrated variables are counted by the amount of indicators. In an enterprise that applies the maximum extent of the knowledge creation process all the types of Ba, knowledge assets and enabling conditions can be found. An enterprise where the knowledge creation process is found to a high extent there can be found three to four types of Ba, three knowledge assets in each category and four to five enabling conditions. If in an enterprise can be identified only two types of Ba, two knowledge assets in each category and two to three enabling conditions, then the knowledge creation process is found to a medium extent. Finally, if there exist only one type of Ba, no or one knowledge asset and at least one enabling condition then the knowledge creation process is found to a low extent. However, it is possible that in an enterprise can be found one indicator for knowledge assets for socialization and externalization but no combination and internalization can take place. Furthermore, it is necessary to find at least one type of Ba and one enabling condition so the knowledge creation process can take place.

## Comparative analysis - Organizational learning

When comparing all the results regarding the organizational learning process there some similarities that could form a pattern. First, individuals and systems are found in all three enterprises as agents of learning. All the enterprises consider the individuals as key player concerning learning. Also they see the necessity to store the available knowledge of the individuals in order to make it accessible to the enterprise. Those agents contribute to overcoming the barriers to learning. However, the enterprises are not aware of the crucial role that elites and

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groups/communities of practice could play in order to increase the learning process and thus competitiveness.

Concerning the barriers to learning it is striking that skilled incompetence, fancy footwork and malaise, as well as norms, privileges and taboos could not be identified in one of the enterprises. This can be explained by the enterprises' size. Two enterprises are small sized and one was medium sized enterprise according to our definitions, therefore the employees work close to each other and the management is very open to the employees. They trust each other, and mistakes are seen as a way to learn rather than as failure. Moreover, public rejection does not occur because there is no public. Due to the size, every single employee has a significantly higher influence on the enterprises' public. However, the relationship among the employees in all the investigated enterprises was described as good.

Learning on the job is proceeding in all the enterprises. Especially instructions, coaching, and vocational adjustments are used in all enterprises because all of them are directly related to the actual work process. Teamwork and rotation appeared also in all investigated enterprises due to their size. The employees need to rotate in order to perform different operations, so they can perform tasks and substitute one another. This can also be related to the limited number of employees who represent the human resources. Due to their lack of resources and the size continuous improvement processes are necessary in order to secure high quality performance and thus competitiveness.

With respect to learning off the job all, the enterprises offer meetings, events, and workshops off the job. Often these "events" include the whole enterprise because they unite and strengthen their relationships. This is regarded as very important because disturbances or negative tensions could jeopardize the existence of the enterprise. Visiting institutions of higher education is supported in all enterprises. The limited resources of the enterprises can explain this. If employees visit institutions of higher education, they do it in their spare time. By doing that they increase their skills and knowledge base. Therefore, by supporting the employees to visit these institutions the enterprises also benefit from it. Thereby, the learning is transferred from a job oriented in company activity to a broader context where each individual takes responsibility to learn. This can be described as

outsourcing of learning because the employees invest their own resources (leisure time). As benchmarking is found in all enterprises, the size and the lack of resources can also explain it. First, due to their size the enterprises can benchmark only externally. They do it in order to stay competitive. Second, they do not have the resources to develop best practices on their own, as none of the enterprises has an R&D-department. Furthermore, skills training centre's, teaching workshops and learning offices could not be identified in the three investigated enterprises. This is due to their size and lack of resources. First, the number of employees is not enough to provide these tools permanently. There is simply not enough demand for them. Secondly, these tools require sufficient human and financial resources for maintenance. They are not capable to implement and maintain these tools.

### **Comparative analysis – Knowledge creation process**

Based on our findings regarding the knowledge creation process in three enterprises one can say that this process is different on each enterprise. Starting with Ba as a context that facilitates the knowledge creation process, it is taking place from zero to a high extent. Size, knowledge and resources can explain this circumstance.

With respect to the enabling conditions, they do not only occur to a medium extent but in fact they are also the same in all investigated enterprises. Indeed, the different extents cannot be explained by the enabling conditions. Moreover, the size, knowledge or resources do not seem to have an influence on the enabling conditions when comparing the three enterprises. Therefore, these results could form a pattern that is typical for SMEs. However, the three enterprises are small and its employees work close to each other; among them are embodied care, love, trust and commitment. The presence of requisite variety is due to the rotation of employees. Hence, redundancy cannot be found so the information flow must be sufficient. All the three enterprises are working as a sub-supplier based on customers' orders for that they have not faced crisis, yet. Another indicator found in three investigated enterprises, is autonomy. The relatively small size is something that all the enterprises have in common. They do not have huge human resources to supervise all the work done. Therefore, love,

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care, trust and commitment determine the relationships so the employees perform their tasks autonomously because the machines need to run.

## Conclusions

Based on our problem formulation we assumed that the organizational learning and knowledge creation processes are not found to a full extent in SMEs as described in theory. First, we explicated the special role of SMEs in the modern economy and its consequences regarding the two processes. Hereby, we reasoned that the processes are not found to a full extent as described in theory because of the lack of resources, knowledge and size. Second, we elaborated the theories that are dealing with the two processes. Thereby, we pointed out the similarities and differences between these processes. From these theories, we derived our analytical model, which was the basis of our empirical data collection.

With respect to our assumption, the empirical findings do not falsify our initial claims. Moreover, we can approve that organizational learning and knowledge creation processes are not found to a full extent in the investigated enterprises. Furthermore, we elucidated that the extent to which the processes are found, vary between the enterprises as well as between the processes. This variation can on the one hand be explained by the lack of resources, knowledge and size. On the other hand, the extent of the knowledge creation process was in all investigated enterprises comparably lower as the extent of the organizational learning process. This supported the epistemological influence as all the investigated enterprises are embodied in Western epistemology.

The empirical findings point out also some similarities that could form a pattern for SMEs. Regarding the organizational learning process individuals and systems could be found in all investigated enterprises. This is endorsed by the fact that learning is considered as important by all the interviewees. Therefore, every enterprise has learning on their agenda and the agents of learning are present to a high extent in all investigated enterprises. However, does not every enterprise manage to overcome the barriers to learning, although they have the same number of agents of learning?

With respect to learning on the job, six out of nine indicators were identified in all enterprises. These indicators are related to the actual work process where employees are instructed or coached, work in teams, rotate and are adjusted vocationally. Learning is part of the work process and therefore decentralized in order to improve processes continuously. Hence, working in these enterprises is signified by closeness. The reason is obvious because the enterprises are small and by sharing their knowledge and experience e.g. through rotation and teamwork the employees are on all-purpose. Thereby, the lack of resources, financial as well as human, can be overcome by the enterprise because the machines can run with a comparably lower amount of employees. Besides learning on the job, learning off the job is also taking place in the investigated enterprises. We identified three out five indicators in all enterprises. Meeting, events, workshops, institutions of higher education and benchmarking were used or supported in the enterprises. In comparison skills training centre, teaching workshops and learning offices were not identified at all. Courses and seminars were found only in two enterprises. The expenses and benefits that are connected with these indicators can explain these findings. As well there is missing the human capacity to attend these tools. Meetings, events and workshops are considered as a useful tool to train the employees or motivate them. These tools were appropriate for the enterprise because they did not require extraordinary amounts of financial and human resources. Supporting the employees to visit institutions of higher education offers the enterprises the opportunity to increase their employees' skills and the organizational knowledge base. The enterprises appreciated the institutions because they were mainly taking place outside the working hours, so it can be considered as an outsourcing of learning on behalf of the employees. We pointed out that benchmarking is used in all investigated enterprises because it offers them to improve (learn) without extraordinary expenses and commitment of the employees.

Eventually, learning on the job is taking place to a higher extent than learning off the job in the investigated enterprises. Learning on the job is regarded as more appropriate for SMEs because it requires less financial and human resources to be involved in this process than learning off the job. Moreover, the outcome of learning on the job is much more visible than

learning off the job because the learning affects directly the productivity whereas learning off the job has a more indirect effect on the productivity.

Taking into account the knowledge creation process, we can conclude that there are more differences than similarities. For Ba we could not identify a common pattern due to the lack of knowledge about these concepts in two enterprises. However, the enabling conditions were found in all enterprises to the same extent. Therefore, we conclude that this illustrates a pattern for SMEs. In all the enterprises, the employees were facilitated to be autonomous as far as circumstances permit. We relate this to the size of the enterprises. There was no strict hierarchy; instead, the structure was rather flat. Thus, the employees should contribute to the production process otherwise; they will increase the enterprises' lack of resources. Requisite variety is important to cope with new challenges. Therefore, in every enterprise the employees rotate in order to improve their skills. Consequently, the enterprises have skilled employees who can perform different tasks and thereby reduce the need for human capital because the same number of employees can perform more tasks and support each other. Due to the size, the relationships among the employees influence the success of the enterprise. Therefore, good relationships based on love, care, trust, and commitment will not only improve the climate in the enterprise but also the success positively. In SMEs, it is nearly impossible to stay anonymous. Hence, close relationships enhance those feelings among the employees. Consequently, the employees are energized, passionate and develop positive tensions to accomplish their tasks. Hereby the socialization process as initial mode for knowledge creation is fostered in all the enterprises. Nevertheless, tacit knowledge is not converted to explicit knowledge in a desirable level. According to our empirical findings, the investigated enterprises are dealing mainly with explicit knowledge. All of them are working nearly exclusively as sub-suppliers and do not investigate in research and development of new products. Therefore, the explicit knowledge is stored in their databases where it is accessible to all employees but is not combined in order to develop patents or licenses. Unfortunately, the explicit knowledge is not used completely as a basis to creating new tacit knowledge. Although, all enterprises have their unique organizational culture; internalization of explicit knowledge to continue the knowledge creation spiral is not taking place continuously.

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## Reflection upon our paper

We believe that we fulfilled our purpose and answered our research question. We concluded that the two processes differ because they belong to diverse epistemologies. Moreover, they also differ between the investigated enterprises. We have shown that the three investigated enterprises were dealing mainly with explicit knowledge, which signifies the Western epistemology. Thus, using and working with tacit knowledge can be improved in all investigated enterprises. Hence, it could have been useful to investigate also SMEs from the Eastern epistemology. However, it is difficult to find these enterprises in Europe because there are no SMEs from the Eastern epistemology.

Finally, we concluded our research although there are stills many interesting aspects that could be researched further. Our research was focused on three SMEs in the manufacturing industry. Therefore, it would be promising to conduct our research in other industries, for example the service industry. Furthermore, we pointed out that the differences between the organizational learning and knowledge creation process seems to be rooted in the different epistemological origins of the theories.

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