INTERGENERATIONAL KNOWLEDGE TRANSFER IN HIGH-TECHNOLOGICAL COMPANIES: A COMPARATIVE STUDY BETWEEN GERMANY AND QUEBEC

In today’s knowledge economy retiring experts are a threat for a firm’s performance. This article based on compared investigations of management practices in Quebec and Germany leads to a better understanding of the impact of the aging population on management methods in the field of KM in high-technological companies.

Introduction

Demographic change has more and more become an issue in modern societies. In a business perspective, people are concerned about the consequences of this phenomenon for the companies. The headlines of the daily press in business show the importance of the need to renew the competences and to transfer knowledge from generations to others in the context of a knowledge economy, as the companies are facing an aging and retiring population.

Both the retention as well as the eventual replacement of the ageing workforce within most industrialized nations, are primordial issues in the coming decades (Armstrong-Strassen and Templer, 2005; Spitulnik, 2006; Babyak, 2006; Vu, 2006). For example, Dychtwall, Erickson and Morison (2006) report that nearly one-third of all Americans (76 million) were born between 1946 and 1964, representing a population surge “sandwiched” between depressed birth rates in the inter-war years and those throughout the 1970’s (Ebrahimi & Saives, 2006; 2008). Furthermore, the replacement birth rates in several industrialized nations such as Italy (1.2), Germany (1.3) and Japan (1.4) are considered to be well below the required levels of 2 or more to sustain a healthy workforce. Those nations and also the Canadian society now face a set of socio-demographic constraints. Companies fear the lack of younger qualified workers in scientific and technological fields and the loss of knowledge with the retirement of older qualified workers (DeLong, 2004). This double phenomenon partially explains the inadequate availability of expertise in face of the current demand which is more than ever a source of competitive advantage in today’s knowledge economy (Ebrahimi and Saives, 2006; 2008). A decline of the active population is combined with a qualitative change of the attitude towards work. In general age and life is perceived differently and today companies are forced to modify their philosophy of management and to find a solution that integrates all the different challenges (Leibold and Voelpel, 2006; Früchtenicht, Leibold and Voelpel, 2007).

Examining this problem requires the analysis of the social and cultural environment in the context of today’s knowledge economy. A description of Hofstede’s cultural dimensions (1980) helps to start a cultural comparison and to identify important elements for a comparative study of intergenerational knowledge transfer in different countries. The article presents the results of a comparative study, conducted to compare the knowledge management practices in Quebec and Germany. Those two

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1 We would like here to thank the Canadian Social Sciences and Humanities Research Council (SSHRC) for their financial support for part of this work.
societies have been chosen because high-technology plays an important role for their economic strength and they both are affected by the demographic change. Several social factors which distinguish one society from the other are selected because they can have an impact on the manner of knowledge transfer within companies. Therefore, this article examines the impacts of cultural differences on the management of intergenerational knowledge transfer in high-tech companies. This is realized in conducting an exploratory study which integrates three main social factors: the educational system, the specific management style for a country and the existing relationship between generations. This paper will present the main theoretical issues and the research questions that derive from this work. This is followed by the description of the methodological approach that was adopted to realize this research. Finally we will present and discuss the exploratory results generated from the field investigations.

Theoretical issues

The theoretical issues that are presented in this section treat three main elements: demographic change, knowledge management (KM) and the dimension of comparative management. The main concepts are presented in the conceptual framework at the end of this section.

Demographic Change and Knowledge Management

The main capital for a company is no longer the physical workforce, but the employee’s specific, task related knowledge (Bouchez, 2004). For the firms, especially for those who operate in highly complex fields, this means that in a certain way they depend on their employees and their knowledge. Today’s society can be described as an information society (Castells, M. 2000) where knowledge transfer plays a central role. The usual borders of a firm have become flexible and are transgressed by knowledge flows with the external environment. The capacity of innovation has become a strategic goal, companies trying to develop a strategic competitive advantage (Leibold and Voelpel, 2006). The ideas, creativity, innovation or intellectual and cultural productions of human beings are the roots of an economy which is essentially based on intangible factors. Three key elements play an important role in terms of innovation: the individual, technology and interaction between individuals (Beazley, Boenisch and Harden, 2002).

In addition to the shift to a knowledge economy, demographic change has become an important issue for several countries as for the Quebecer and German society. We can observe a low fertility rate having as a result a penury of qualified junior employee’s. On the other hand we find a big number of aged workers in today’s companies; people born in the period of the baby-boom being close to retirement. This combination of phenomena leads to a drastic aging of the society. In companies this changes lead to a different perception of work, age and life in general (Leibold and Voelpel, 2006).

People expect from companies to adapt to this social change, to develop new business models integrating the actual working conditions. The former concept “live to work” becomes “work to live” (Leibold and Voelpel, 2006) which basically means that the focus is put on personal experience and self-fulfilment at work, for example by the acquisition of new knowledge. This phenomenon, a shift in values and in perception of work, is combined to technological progress and globalisation (Beazley, Boenisch and Harden, 2002).

The ideas expressed below lead to the concept of knowledge management and its importance for the performance of a company. The phenomena of the aging society or the fact that qualified aged employees leave the companies has as result the danger of lost knowledge. Firms have difficulty to hold back crucial specific knowledge of employees who leave the company (DeLong, 2004, McCauley and Seidmann, 2006). In terms of the innovative capacity a loss of knowledge can lead to a decrease in productivity, especially in RD activities of high-tech companies (DeLong, 2004).
The term of knowledge per se can be defined as “intangible asset” (Foray, 2000) for each company. It is important to mention that there exists an explicit and tacit part of knowledge (Polanyi, 1966; Nonaka and Takeuchi, 1995). Explicit knowledge basically is formulated and articulated while tacit knowledge is deep-rooted, difficult to express, codify or transfer (Foray, 2000). The field of knowledge management (KM) can be approached from a technological or human side. This research is based on a social view of KM as it deals with the diversity of people and includes the interaction of individuals.

“The managerial approach integrates the knowledge as resource, contributing to the implantation of a firm’s strategic vision. This approach is based on the performances of a firm, on exchange and sharing of cyclical tacit knowledge (in general organisational knowledge). (…) It includes the diversity of situations, the complexity of problems and the multiplicity of actors concerned by Knowledge Management.”

This study is based on the KM approach of Nonaka et Takeuchi (1995), key elements being individual interaction, and the interconnectivity of explicit and tacit knowledge and their SECI model of knowledge transmission between individuals inside an innovative company. The five conditions of this model (intention, autonomy, redundancy, reformulation of thoughts, fluctuation and creative chaos) as also several key concepts related to the SECI model appeared useful and consequently constitute key elements for this comparative study that can be described as a constructivist analysis of intergenerational knowledge transmission. An important element to facilitate the sharing of tacit knowledge is the “dialog”. This concept can be described as an “open thought with both, self-assertion and modesty” (Nonaka and Toyoma, 2005 p. 429). Another important aspect is a company’s vision which should be dispersed in a company so that employees can share common values and interconnect the organisational values with their own activity. The identification with the companies’ values is amplified by the development and communication of “driving objectives”.

In relation to the problem of intergenerational knowledge transfer we also take into consideration the concept of “phronetic leadership”. The term of phronesis has its origins in philosophy and the concept developed by Aristotle has been assimilated by Nonaka and Toyama (2006; 2007) and linked to strategic management. The term of “phronetic leadership” describes wisdom inside a company which should be dispersed among employees who should autonomously take decisions based on their moral. A possible translation in this context could be “practical wisdom” or “prudence” (Holden, Kohlbacher and Nonaka, 2006). The concept links strategic management to knowledge management and especially the term of wisdom is interesting for this study because it can help to give a closer description of aged-worker’s knowledge.

The danger of knowledge loss is caused by aged workers leaving the company and has already been mentioned. But how can the added value of an older person for a company be described and why has retaining the knowledge become so important? The different dimensions of knowledge, its tacit and explicit part play a crucial role and other factors can be added to a complete description of older workers’ roles in a high technological company. Jaworski (2005) mentions the capacity of mentoring as an important quality of aged workers. Leiphold and Voelpel (2006) add qualities like experience, loyalty and engagement. Especially in the context of knowledge management we can speak of “experts” whose knowledge is “…a fusion of knowing, know-how and reflection constructed from social interaction within a specific socio-cultural setting” (Gherardi 1998, in Jorgensen 2005 p. 315).

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2 Rivard & Roy 2005, p.17: « L’approche managérial intègre les connaissances en tant que ressources contribuant à la mise en œuvre de la vision stratégique de l’entreprise. Cette approche est centrée sur les performances de l’entreprise et sur l’échange et le partage des connaissances tacites conjoncturelles et dynamiques (en générale les connaissances organisationnelles). (…) Elle prend en compte la diversité des situations, la complexité des problèmes et la multiplicité des acteurs concernés par le Knowledge Management. »
To continue on the identification of aged workers specific knowledge, Deep smarts (Leonard and Swap, 2004) may be a useful concept. Deep smarts are a contextual, implicit type of knowledge facilitating the comprehension of complex situations and decision taking based on systematic and detailed comprehension. They are acquired by formal education and experience and in a business context the “deep smarts” get very close to wisdom. The concept also contains strategic elements, also enforcing a company’s capacity to innovate. The expression reminds of the term of “phronesis” which is used in the context of knowledge management. Being conscious of the danger to lose important knowledge, management should facilitate the knowledge transfer. This also means that they should create a basis for the employees permitting them to acquire the complex and tacit knowledge of experienced employees. This means that employees should be able to interpret know-how and use it at a later moment of time (DeLong, 2004 p. 41). A transfer could be possible with a technique of “learning-by-doing” for example (Leonard and Swap, 2004).

The variety of accumulated knowledge at the disposal of the expert and his social network are of big value for the company (Ebrahimi, Saives, Holford, 2008). Several approaches can be compared. For example the transfer of expert knowledge can be described as a second theory of KM (Ackermann, Pipek and Wulf, 2002). One can compare very punctual approaches, such as “expert interviews” (McCauley and Seidmann, 2005) or larger visions as the development of an individually adapted strategy for knowledge transfer for each company (DeLong, 2004; Young, 2006). Existing theories show that after having discussed several problems linked to intergenerational knowledge transfer, the problem has been analysed more deeply and other factors have been included. For instance, the ideal moment of knowledge transfer is difficult to determine (DeLong, 2004) or there exist communication problems between generations which do not always share the same values (Filipczak, 2000; Schütt, 2006). The result of these investigations are the development of new firm structures, the adaptation of working conditions or a multidisciplinary approach, including the intergenerational knowledge transfer (Früchtenicht, Leibold, Voelpel, 2007).

The theoretic issues described above give a description of an aged worker’s added value for a company in the context of the knowledge economy. The terms “deep smarts” and “phronesis” describe the existence of wisdom inside a company while the latter describes wisdom in a larger way, based on moral and the values of a person. Experience plays an important role and for the firms it is of big importance that the added value of aged workers is perceived. Age and innovation should be put in relation (Holden, Kohlbacher and Nonaka, 2007). This relation can be very stimulating, the aged workers pushing innovation by using their experience. But age can also be an inhibitor of innovation if aged workers are not encouraged to share their knowledge or ignore new ideas and procedures. According to Holden, Kohlbacher and Nonaka (2007) the transfer of phronesis is possible through the SECI model. The four phases of knowledge transfer, a communicated knowledge vision and shared values can have as a result the creation and refinement of knowledge.

Cultural Differences: Education, Management and Intergenerational relationships

The personal values could differ from one society to the other which makes the cultural dimension very interesting for this investigation. An individual’s values are often created by interaction with his environment which explains why the different national cultures are examined. Culture or the dimension of comparative management plays a key role for this study. The societies of our interest are Quebec and Germany, both suffering from the phenomena of demographic change in a context of today’s knowledge economy.

Culture can be defined as “mental programming” in a society (Hofstede, 2001 p.4), an emotional and cognitive system of values which is specific to every society (Barmeyer, 2007 p.8). Culture also means interaction and collaboration. It can be conceived as “social tissue” (Geertz, 1973) or “semantic inventory” (Deval, 1993). Individuals use it unconsciously to interpret the reality they perceive.
Culture can also be perceived on an individual, a collective and a universal level (Hofstede, 2001 p.3). The most appropriate level here is the collective one, because it permits a comparison on central tendencies to determine if there exist important, culturally related differences in terms of “mental programming” in German and Quebecor companies.

This comparative analysis is based on three adequate social elements reflecting a national culture: the educational system in each society, the management style and the relation between the older and younger generation which can be observed in each country. The educational system and its impact on management practices is important because education is an important mean of knowledge acquisition or refinement. Educational institutions which are collectively visited constitute a place of socialization and facilitate the creation of a particular system of values (Barmeyer, 2007). The management style must be considered because several differences between national management styles exist. Those are often strongly linked to cultural differences: "In the course of the 1990’s, and in fact for the first time, ‘the way we run business’ has been generally acknowledged to differ fundamentally depending on whether you and I are from one culture or another.” (Altman, Gatley and Lessem 1996, p.6). As third comparative element is added the relation between generations. The difficulty of intergenerational communication was already mentioned and adding this element helps to better understand this complexity.

Education, Management Style and Intergenerational Relations in Quebec and Germany in today’s literature

Hofstede was one of the first writers who dedicated his work on cultural differences. His research on the five cultural dimensions builds the general frame of this research investigation. The different dimensions: “masculinity”, “uncertainty avoidance”, “power distance”, “long-term outlook” and “individualism versus collectivism” (Hofstede, 1980) facilitate an intercultural comparison. In the discussion of the above identified social factors we will come back to those dimensions for Germany and Quebec.

Concerning the educational system Germans focus on the responsibility of individuals. This is shown with the dual education system being developed in Germany (Glouchevitch, 1992). It can be described as integration of practical experience and an academic education aimed to integrate the youth in the professional life as soon as possible. The dual system is a force of the German education and it shows the appreciation of young people and their potential. The accent on responsibility does also show in the German management style. It appears in the literature that German management gives a lot of leeway to employees to take decisions in an independent and autonomous manner (Bommensath, 1991; Lawrence, 1980). Another aspect which puts emphasis on responsibility and on taking part in decision making is the co-determination in German companies. Co-determination is a German way of management where different decision-makers (management, shareholders and the work’s council) take an active part in the decision-making process (Lawrence, 1980). Companies’ hierarchies tend to be flat (Barmeyer, 2007 p. 72). A link to Hofstede’s “individualism versus collectivism” and “power distance” is useful, because we can observe a collective decision-making process (high collectivism) and a low power distance.

Another German characteristic is the principle of ‘practicality’ (“Sachlichkeit”), an efficient way of communication and action where the main focus is on the matter without involving any distractive elements (Barmeyer, 2007). This ‘practicality’ could eventually be linked to the particularity of interpersonal relations described by Hampton-Turner and Trompenaars (1993). Relations are marked by a certain reserve, so that personal contacts are established very slowly. The main focus in interpersonal relations at work is on the task, but one time the personal relation established, it exists on the long-term and is very deep:
“Germans have two distinct sides to their nature. On the one hand they are profoundly drawn to the rich interior life, to the world of emotional, idealism, privacy, depth and sensitivity—and friendship belongs to this. On the other hand they are very practical and ambitious.”

(Turner and Trompenaars, p. 224)

Concerning the intergenerational relation in Germany, there exists a certain “mindset” in German society (Leibold and Voelpel, 2006). The existing picture of the older generation and their way of working is often problematic, because the experience and competences are not sufficiently acknowledged. It is important to change existing patterns and especially in the actual context one should be more open-minded towards the aging society. Nevertheless, the German management style is often described as exemplary. From the 70’s to the 80’s German management found an adequate manner to handle the consequences of the baby boom. Today’s question would be if it also can develop efficient strategies to handle the baby-boomers’ departure and to create the necessary conditions for knowledge transfer.

The literature shows the existence of significant differences between Quebec and Germany in terms of the educational system, the management style and intergenerational relations. Before going into the details we want to point out the fact that Quebec’s social context is specific. Quebec is a place where several cultures come together and have an impact on local culture. In the francophone province one of the main questions concerns the own identity of the population, because Quebec is part of North-America being strongly influenced by the French culture (Fischer, 2008). One can describe the management style as mixed, but there exist several characteristics which can be concerned as ‘typical Quebecor’ (Barmeyer, 2007). Concerning the educational systems Quebecers put an emphasis on equality between individuals and personal development (Côté, 1993). This can be explained by Quebec’s particular role inside Canada and the political tension with Canada’s Anglophone part. In Quebec there exists a certain feeling of affiliation, a certain collective feeling. Hofstede’s dimension of “collectivism” seems to be more distinctive in Quebec than in the English part of Canada. Thereabouts, the dimension of “individualism” is the most distinctive, but the situation in Quebec differs because of social particularities as the French influence for example (Côté, 1993 p. 131). The youth in Quebec in not integrated in professional life the same way as it is in Germany. It is often the case that “experts” fulfill the key tasks in a company. An interesting observation is the fact that also in Quebec we can find flat hierarchies which could be the case because of the Canadian federalism which is similar to the German system. There is a tendency to collectivism and team spirit.

While the planning in Germany is often made on the long-term, Quebec’s decision making is more often made on the short term (Barmeyer, 2007). The literature review lets us suppose that it is difficult to get hired as an aged worker. As already observed for Germany there exists a certain pattern to thoughts, a stereotype of older employees and their performance at work (Côté, 1993). Another interesting factor concerning the relation between generations is the “quite revolution” which can be described as a shift from a society dominated by the church to a society of consumption. This shift can have consequences on the values of each generation (Fischer, 2008). Those could differ from each other and a danger of stereotyping each generation remains. The perception of age can differ from one society to the other and in the case of this investigation it should be examined more in detail for Quebec and Germany. We are assuming that the socio-cultural context differs from one society to the other, and that these differences are playing an important role on intergenerational knowledge transfer. Therefore, our research question is: What are the impacts of cultural differences (between Quebec and Germany) on knowledge management and especially on knowledge transfer between aged workers and the young generation in high-tech companies?

Three sub-questions can be formulated: RQ1) The described elements in relation to the SECI model show that the managerial dimension is important for intergenerational knowledge transfer. Management should create and affirm an adequate environment for knowledge sharing and transfer. Hence, management and its different styles play an important role for this comparative study: In
which manner does the SECI model appear in German and Quebecer companies in a context of intergenerational knowledge transfer?

RQ2) To examine the intergenerational knowledge transfer in high-technological companies the perception of age and the added value of aged workers are important elements. After having discussed the theoretic concepts of “deep smarts” and “phronesis” the conducted research aims to answer the following question: How can we describe the place of older workers in German and Quebecor high-tech companies?

RQ3) The concept of culture and its definition play a key role for this investigation. Germany’s and Quebec cultures are compared on the collective level, the comparison being based on three main elements. In relation to these three elements: Which impact do the social factors selected for this research have on management practices in terms of intergenerational knowledge transfer?

Figure 1

Conceptual Framework
The previously formulated research questions are based on the conceptual framework presented above. Several social factors as the particularity of the societal culture, the economic functioning and the status of the knowledge economy impact the general framework of high-tech companies in each knowledge society, the German and the Quebecer.

Inside this framework several global managerial aspects will be examined. As discussed above the impact of the educational system on management plays a crucial role. Other elements like the process of decision making or the company structure are added to describe the managerial style in the companies approached for this study. The main element of the general frame is the SECI model (Nonaka and Takeuchi, 1995), its conditions. The tacit dimension of knowledge plays an important role in intergenerational knowledge transfer, that’s why the study has its focus on elements like the “ba” (space for socialization), the “dialogue” and a company’s “vision” and “driving objectives” (Nonaka and Toyama, 2005). They permit a better understanding and conceptualization of the distance between generations which could or could not exist.

The individual plays an important role. To understand and describe the place of aged workers and their added value for the company, the conceptual frame also includes the concepts of individual “knowledge” and “values”, “deep smarts” (Leonard and Swap, 2004) and “phronesis” (Nonaka and Toyama, 2007). The research leads to an understanding of the relations between generations in the analysed companies, of an existing paradigm of intergenerational knowledge transfer and finally to an understanding of managerial practices in terms of intergenerational knowledge transfer in German and Quebecer companies.

**Methodological approach**

Intergenerational knowledge transfer is a highly complex organisational phenomenon which was treated in conducting a qualitative research. The dimension of comparative management which has been added explains the investigation’s exploratory character. The qualitative research method is intended to yield an in-depth understanding of the impacts of social factors in the Quebecer and German society on intergenerational knowledge management. To complete our literature review on the subject, we conducted an exploratory research in the two studied countries. Sixteen semi-directed interviews (approximately 1.5 hour) have been conducted in Germany and in Quebec with experts (half being “juniors”, half being “seniors”). This choice was made to assure an intergenerational perspective. Half of the interviews were realized in Germany, the other half in Quebec, the highly-qualified workers coming from the aeronautical, the bio-pharmaceutical sector and from the telecommunication sector. Those three sectors constitute the main high-tech sectors in the Quebecer economy and also play an important role for the German one. Those sectors are significant examples to describe the challenges in the new economy because of the complexity of knowledge which is required. The interviews have been conducted individually and in three different languages (French, German, and English). The collection of data involving semi-directed interviews was followed by a thematic analysis of the textual data, supported by Atlas.ti, a program for the treatment of qualitative data, allowing the comparison of data in several languages.

**Results of analysis**

Three main blocks of themes could be identified. We will present the three of them separately in the following order: managerial aspects, knowledge management (KM) practices and the individual status of interviewed employees which help to better understand the relationship between younger employees and aged workers.

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3 These interviews have been conducted in spring 2007 in Germany and in autumn 2007/winter 2008 in Quebec.
Managerial aspects

Concerning the managerial aspects in Germany, we can observe that employees actively participate in the decision making process, often working by group or by project. The individuals interviewed for this research seem to act in a very responsible way and show a strong commitment inside the company. There is a certain transparency which permits the active participation, but in some cases this transparency can be obscured by management. A feeling of stability concerning the employee’s activity can be perceived. They often keep the same tasks for a longer period, so they can build long-term relations and develop a sentiment of confidence. Interpersonal interaction exists and is developed on a longer perspective. The educational system is strongly linked to the professional life, several integration programs exist. Younger employees often work in a company, being students at the same time. Diplomas are strongly acknowledged but an even stronger emphasis is put on “know-how” and the practical application of theoretical knowledge acquired at university. In terms of external contact the client seems to be the most important partner, relationships existing on the long term and being based on trust.

In Quebec a tendency to team or project work can be observed and for this research this can be considered as a common point with Germany in terms of managerial aspects. Job rotation should assure knowledge transfer, so people change their position and their co-workers on a regular basis. The change of position strongly depends on the person’s performance at work and “flexibility” is a personal skill often acknowledged within the company. In comparison to Germany, relationships at work are shorter. Also the organizational planning can be considered as being on a short-time basis, financial aspects often playing a crucial role in decision-making. The interviewed persons often mentioned environmental contingencies as market fluctuations as being a threat for their working conditions.

Hierarchies seem to be longer than in the German companies visited for this study. The cut between administrative and scientific tasks seems to be more significant than in Germany which could lead to lack of transparency or to limits in the decision making process. One can observe an existing relation between this point and a possible lack of innovation capacity due to a missing initiative from sides of the employees. The educational system and managerial aspects are not strongly linked. One can observe less integration of school education, but diplomas have an impact on the position in a company’s hierarchy. An emphasis is put on interpersonal contacts. They are

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4 Quote: “…younger colleagues who are arriving now, especially those with a diploma in biotechnology – well, pharmaceutical biotechnology- are much more specific in approaching this field. Well I could say that they have a much better basis as I had when I did my degree in chemical engineering (…) then the initial phase in industry after having finished the studies can be absorbed much faster.”

(translated from German: “…die jungen Kollegen, die jetzt kommen, speziell mit dem Abschluss äh in Richtung Biotechnologie ja so pharmazeutische Biotechnologie, wesentlich spezifischer dieses Themengebiet eigentlich angehen. Also ich möchte meinen, die haben eine wesentlich bessere Basis, als ich sie damals mit meinem Chemieingenieur gehabt habe (...)) also, da ist die Initialphase von Abgang Studium in die Industrie mit Sicherheit schneller zu absolvieren”

5 Quote: “…Especially with our clients we have a big quantity of business relations on the long-term. New relations can be developed out of the existing ones, especially when we are considered as a positive reference for the client.”

(translated from German: “Wir haben gerade mit langjährigen Kunden unserer Geschäftsbeziehungen, aus denen sich heraus auch wieder neue Beziehungen anbahnen, speziell dann, wenn man eine positive Referenz für diese Kunden darstellt.”)

6 Quote: “The fact of changing actually permits seeing, putting back to zero the way of doing things or the things that happen to you. Because when you stay at the same place for a long time you are put in a paradigm and stop your evolution. I see it like that and my bosses as well.”

(translated from French: “Le fait de changer, ça permet de voir, de remettre toujours à zéro la façon de faire ou ce qui t’arrive. Parce que si t’es pour longtemps à un même endroit tu t’es mis dans un paradigme et t’arrêtes d’évoluer. Moi je le vois comme ça et mes patrons aussi.”

7 Quote: “...you’re looking at companies going through a lot of changes. There has been lay- offs the last couple of years, which is new I think for people to handle over there, too, so I think there is a little bit of defence there.”
perceived as an indicator of performance inside the company and employees are strongly motivated to communicate with external contacts.  

Table 1

Comparison of Managerial Aspects: Quebec/Germany

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<th>Managerial aspects</th>
<th>Quebec</th>
<th>Germany</th>
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| A) Specific organisational characteristics | • Team work per project  
• Rotation/change of position (flexibility related to performance)  
• Longer hierarchies  
• Environmental contingencies (market fluctuations) | • Team work per project  
• Specialization/hardly rotation (enlargement of responsibilities)  
• Shorter hierarchies  
• Contingencies hardly mentioned |
| B) Decision making | • Confrontation direction – employees  
• Short-term vision  
• Sometimes collective decisions  
• Sometimes: lack of initiative  
• Often: decisions based on financial aspects | • Client proximity  
• Long-term vision (quality)  
• Implication of employees  
• Total employee involvement is developed (effect: sometimes lack of transparency) |
| C) Impact of the educational system | • Less integration of school education  
• Diplomas have an impact on hierarchical position | • Integration of scholar education and professional life  
• Valorisation of diplomas and „know-how“  
• Integrated education |
| D) Interpersonal contacts | • Important quantity of contacts (especially aged workers)  
• External communication and visibility of the company  
• Positive link between contacts and performance  
• Importance on internal contacts  
• Contacts for being hired | • Contacts less mentioned  
• Accent on clients (as business support)  
• Long-term relations based on confidence (especially aged workers) |

Knowledge Management Practices

In Germany new employees are directly integrated and in general mentoring is a common managerial practice, meaning that each new employee has a tutor who is at his disposal to give advice, explanations and answer questions. The objective of an efficient integration is to directly transfer important values which are shared within the company. Another important point is the development of a critical perspective. New employees should be able to understand their tasks and procedures inside the company and be able to evaluate or improve them. The focus is on personal development of each employee and specialisation. Concerning knowledge transfer German management aims efficiency in a longer perspective, which is expressed through the storing of data and the planning methods inside a company. Organizational planning in relation to knowledge transfer aims to find a successor for a person close to retirement. This is possible in a middle-term perspective because some organizational changes are not predictable. The planning of knowledge transfer is more institutionalized in bigger

8 Quote: “It’s a business man in Quebec who already made business with x (private American investor) concerning this funding. It has been him who opened us the door. If you don’t know the doors you don’t get in.” (translated from French: “C’est un homme d’affaires au Québec qui a déjà fait d’affaires avec x (investisseur privé américain), avec ce financement là. Et c’est lui qui nous a ouvert les portes. Si tu ne connais pas les portes, si tu n’ouves pas des portes, tu ne rentres pas.”

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companies, whereas in small companies the knowledge transfer is not perceived as being systematic enough.

A common point of German and Quebecer companies is the emphasis which is put on interaction and regular meetings that are a preferred managerial practices to share knowledge. Concerning firms in Quebec we already mentioned the job rotation which for them represents a possibility to acquire new knowledge. In both societies one can observe various tools for storage. But while in Germany the preferred storage manner seems to be in form of reports, documentation in Quebec often is perceived as additional effort. The main objective of storage seems to come from the company’s side that is willing to avoid the dependency on employees. There is a strong initiative for training, but sometimes cut backs in the existing budget reduce the number of training possibilities. In terms of intergenerational transfer less emphasis is put on technological knowledge. Values and skills should be transferred, but one can observe a lack of planning. As in Germany, transfer is more institutionalized in bigger companies, but the aspect of middle term planning we could observe in German companies is missing.

**Individual status**

In Germany aged workers often have a role of a tutor or mentor, which has already been mentioned in relation to managerial practices of KM and integration. The technological knowledge plays an important role, but the transfer of values, tools or ways of decision making is also perceived as crucial. In German companies one can observe a respectful relationship between generations. Knowledge and experience of aged workers is valorised and their position in the company is respected. From sides of the aged workers there is a certain attachment to the company and their organizational unit. Before leaving the firm they often have concrete goals they want to realize, perceive important facts that absolutely have to be communicated to their successors. If possible, knowledge is absorbed by younger employees who often know the latest technology and aim an enlargement of their responsibilities. A competition between younger people can be observed, because they are at the same knowledge level and only can differ from the other in terms of personal skills and commitment to the company. The attachment to the department is often very strong, which makes it difficult to execute organizational changes of to find young qualified employees for a certain business unit.

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9 Quote: “…the reason is the cost. To pay two persons at the same time is not good for efficiency. To do the documentation is very expensive and to keep it up to date is even more expensive. Because the person does not work while he is preparing the documentation. Documentation needs to evolve.” (Translated from French: “La raison c’est le coût. Payer deux personnes en même temps, ce n’est pas bon pour l’efficacité. Faire la documentation est très coûteux, la maintenir est encore plus coûteux. Parce que la personne pendant qu’elle fait la documentation, elle ne travaille pas. Et il faut que la documentation évolue.”)
Table 2
Comparison of KM aspects: Quebec/Germany

<table>
<thead>
<tr>
<th>Knowledge Management Practices</th>
<th>Quebec</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) Communication</td>
<td>Importance on interaction</td>
<td>Importance on interaction</td>
</tr>
<tr>
<td></td>
<td>Regular meetings as preferred practice</td>
<td>Regular meetings as preferred practice</td>
</tr>
<tr>
<td></td>
<td>Places to socialize</td>
<td>Places to socialize</td>
</tr>
<tr>
<td></td>
<td>Acquisition of knowledge by job rotation</td>
<td>Problem of total employee involvement (inhibits communications)</td>
</tr>
<tr>
<td>B) Storage</td>
<td>Various tools for storage</td>
<td>Various tools for storage</td>
</tr>
<tr>
<td></td>
<td>Main objective: centralise information, avoid dependence on employees</td>
<td>Reports (principle of efficiency), motivation for employee</td>
</tr>
<tr>
<td></td>
<td>Documentation is perceived as additional effort</td>
<td>Standardisation of documents with growth of the company</td>
</tr>
<tr>
<td>C) Training and knowledge</td>
<td>Variety of educational programs (more institutionalized in big companies)</td>
<td>Variety of educational programs (more institutionalized in big companies)</td>
</tr>
<tr>
<td>update</td>
<td>support for training</td>
<td>Dynamic interaction of superior and employee</td>
</tr>
<tr>
<td></td>
<td>Cut back’s in budget</td>
<td>Accent on training: field of expertise</td>
</tr>
<tr>
<td></td>
<td>Aged-workers as trainers</td>
<td>Training is essential for aged workers</td>
</tr>
<tr>
<td></td>
<td>Sometimes lack in terms of developing an innovation spirit</td>
<td></td>
</tr>
<tr>
<td>D) Intergenerational Transfer</td>
<td>More institutionalized in bigger companies</td>
<td>More institutionalized in bigger companies</td>
</tr>
<tr>
<td></td>
<td>Transfer of technical knowledge (less) and other components (values,</td>
<td>Middle-term planning (changes are unpredictable)</td>
</tr>
<tr>
<td></td>
<td>organisational culture</td>
<td>Transfer of technical knowledge, values, social competences</td>
</tr>
<tr>
<td></td>
<td>Transfer not systematic enough or no transfer at all</td>
<td>Transfer not systematic enough</td>
</tr>
<tr>
<td>E) Integration</td>
<td>Barely mentioned</td>
<td>Big role</td>
</tr>
<tr>
<td></td>
<td>&quot;...check list&quot; tool is used but judged as hardly efficient</td>
<td>Transfer of values</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development of critical thinking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accent on operational activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Individual evaluation: strengths and weaknesses</td>
</tr>
</tbody>
</table>

We already mentioned the potential lack of innovation capacity in Quebecer companies. This element can also be put in relation with the status of younger employees in Quebec. Due to certain limits on decision making imposed by the company’s structure they might have tendency to only execute tasks being part of the routine. This could have as a consequence a feeling of frustration and could initiate young employees to seek for other opportunities. The feeling of attachment to the firm is less present, younger employees feeling the pressure to perform instead. In general, the knowledge of aged workers is respected. They often play the role of an advisor, give their general view and in a certain way there can be considered as being symbols for stability in an environment of permanent change. Younger employees mention that they feel confident to know that older employees are still with the same company, even in a context of permanent adaptation to external conditions. The aged workers instead feel some instability caused by the lack of security given by the company.  

10 Quote: "So, with the people who are there for a long time...thins were more stable in that period of time. Now, there are so many changes. It’s a little bit as if I asked you to catch the ball and I would throw it to you, always in the same direction. You know how to catch the ball. Suddenly I decide to throw the ball in another direction. The people are not used to...to, but new employees are used to catch the ball in all the different directions. It is less scrupulous for them than for people at whom one has thrown the ball in the same direction."
a pressure to perform, the relationship to younger employees being considered as equal. Also for the older generation there is less attachment to the organization, the realization of personal projects being highly important.

Table 3
Comparison of Individual Status: Quebec/Germany

<table>
<thead>
<tr>
<th>Individual status</th>
<th>Quebec</th>
<th>Germany</th>
</tr>
</thead>
</table>
| **A) Aged workers** | • Knowledge is respected (less in terms of technology)  
• Willing to transfer knowledge  
• Advise, general view, symbols of stability  
• Relationship with young workers considered as equal  
• Feeling of instability  
• Personal projects are important | • Knowledge is respected (also in terms of technology)  
• Willing to transfer knowledge  
• Feeling of attachment to the company |
| **B) Younger employees** | • Know latest technology  
• Pressure of performance (work overload?)  
• Frustration of being blocked in hierarchical structures (other opportunities?)  
• Concurrence (finance, performance) | • Know latest technology  
• Attachment to the department (difficulty to find qualified personnel)  
• Encumbrance of responsibilities  
• Stronger concurrence between younger workers (with the same level of knowledge) |

Findings and Discussion

A common “driving objective” of German and Quebecker companies is the emphasis put on permanent training and the acquisition of new knowledge. The theoretical part has shown the shift in society to a knowledge economy and the observations made during this research put these theoretical elements in a practical context. Germany and Quebec are advanced in terms of the knowledge economy which means that highly specified employees are acknowledged as the essential asset of the company they work at. But concerning training and education several differences can be described. The theoretical part illustrates the concept of “mental programming” (Hofstede, 1982) and the “collective level” (Barmeyer, 2007). Education is an element of the collective level where mental programming in a society takes place. Observations made for this study confirm the theories about proximity between the German education system and the companies. Integration is aimed from the beginning, so knowledge transfer starts with the integration of young employees, using practices as mentoring, and not just before the retirement of aged workers. In Quebec the impact of the education for 20 years.” (Translated from French: “Fait que les personnes où ça fait plus longtemps qu’ils sont là - c’était plus stable à l’époque, là on a tellement de…des changements, c’est un peu comme si je vous demandais d’attraper la balle, puis je vous lançais la balle toujours au même endroit. Vous savez comment attraper la balle, puis à un moment donné je décide de le lancer dans une autre direction. Fait que les gens ne sont pas habitué de …de, mais les nouveaux employés sont habitués de se déplacer toujours pour attraper la balle dans différentes directions. Ça semble moins pénible pour eux, ils sont moins surpris que les gens que ça fait 20 ans qu’on leur lance la balle dans la même direction.”
system on intergenerational knowledge transfer is much weaker. Hence, the “vision” of Quebecer and German companies in terms of intergenerational knowledge transfer differs significantly.

Another difference concerning intergenerational knowledge transfer concerns the decision-making process. While in Germany an emphasis is put on responsibilities, which is also described by the literature (Bommensath, 1991; Leblond, 1995), the decision-making process in Quebec is limited because of financial and structural reasons. The autonomy of German employees is significant, which shows that this condition of the SECI model (Nonaka and Takeuchi, 1995) is the most developed in German firms. Financial aspects are an important inhibitor for intergenerational knowledge transfer in Quebecer firms.

Another important observation concerns the job rotation in Quebec versus the strong attachment to the organizational unit in Germany. Important differences concerning the “dialog” can be described. An advantage in German firms is the long-term character of business relationship which permits a development of trust and the acquisition of tacit knowledge. Employees who work together on a long term basis can socialize and understand the complexity of the other’s knowledge. A problem could be a certain “blindness” of a person who holds the same position for decades, an inhibitor for new ideas and innovation. The rotation in Quebec stimulates motivation by the permanent change, but on the contrary this does not permit the acquisition of complex knowledge, because a deep relationship can not necessarily be developed. This is especially important for the intergenerational transfer, because the tacit dimension plays the most important role (Ebrahimi, Saives and Holford, 2008; Leonard and Swap, 2004; Nonaka and Toyama, 2007). The organizational structures in Quebec seem to be less stable, environmental factors having strong impact on the working conditions.

After having discussed those points, we can assess that important differences in terms of intergenerational knowledge transfer exists, these being caused by the divergence of social factors. This answers the first research question, because several elements being part of the SECI model appear differently in German and Quebecer companies. The German vision of intergenerational knowledge transfer goes much further than in Quebec and already starts with the integration of young employees. In the Canadian province financial aspects play an important role and in several cases intergenerational knowledge transfer is perceived as an additional effort. The different role and status descriptions give an answer to the second research question. While in Germany there is a strong attachment to the company, the aged worker holding the position for years, the aged workers in Quebec see themselves in an equal position as the young workers and fears structural change caused by external forces. Consequently, there are important differences in social factors that have an influence on the intergenerational knowledge transfer.

The proposition that social factors have an impact on intergenerational knowledge transfer could be confirmed. Several writers dedicated their work to the intergenerational knowledge transfer, but with a focus more on the explicit part of knowledge. The SECI model shows that the externalisation is just one of four important phases of knowledge transfer. Especially in relation to aged workers the tacit dimension is the more important. The empirical contribution of this study is the development of a larger model which integrates social aspects and develops an understanding of the aged worker’s tacit knowledge and their added value for the company. Several social values are created on the collective level and for the problem that is examined here cultural aspects play an important role. Hence, to optimize intergenerational transfer companies should better understand and integrate cultural aspects. In doing so they could work on strategic aspects, permitting them to develop their capacity for innovation and be more competitive.

Conclusion

This research based on the importance of knowledge in today’s economy, the demographic change and comparative management comes to the conclusion that the impacts of cultural differences are significant for the problem of intergenerational knowledge transfer. The two examined societies
show important differences in terms of their vision of intergenerational knowledge transfer and in
terms of the status of aged workers in the firms. After having conducted this research we have
developed a better understanding of the aged workers’ added value in Germany and Quebec. Different
values developed collectively can lead to a different paradigm of intergenerational knowledge
transfer. The term of “intergenerational knowledge transfer” should therefore be defined differently in
adding a cultural, comparative dimension. We can assign that the three social factors we integrated for
this research are important indicators to observe convergences and divergences in terms of
intergenerational knowledge transfer. Education can have a stronger (Germany) of a weaker (Quebec)
impact on management, changing the vision of a company in terms of knowledge transmission
between generations. The management style as an indicator shows for example structural differences
that are causing divergences in terms of attachment to the company. The last social element we
integrated was the existing relationship between generations. Interesting findings as the fear of
instability in Quebec or the importance of mentoring in Germany lead to the conclusion that relations
differ because of cultural differences.

The study presented in this paper gives a first understanding of the problem and multiple
possibilities of future research. Several limits of the conducted research should be mentioned. First of
all, this field study was conducted with a small number of expert interviews and consequently it has a
low level of external validity. Another limit is the fact that interviews have been realized in companies
of three different sectors each of them having a different dynamic. Further research could include the
comprehension of the impacts the three social factors have on intergenerational knowledge transfer in
other countries, especially in Japan or in Scandinavian countries who also suffer from rapid
demographic changes. Another future research could focus on the values of the different generations
do develop a deeper understanding of communication between generations in a specific cultural
context. For instance, the historical context of each generation in different countries could be further
explored to understand the different existing values in each country and to put them into relation with
managerial differences in terms of intergenerational knowledge transfer.

References

Press


Canadian response to an aging workforce. Journal of Management Development. (2005),
Vol. 24 n°1, pp. 57-67

Babyak, R. (2006), "Innovation may fall into a skills gap", Appliance Design, Vol. 54 No.8,
pp.5.

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Fischer, H. 2008. *Québec imaginaire et Canada réel. L’avenir en suspens*, VLB éditeur, Canada


Hampton-Turner, C. et Trompenaars, F. (1993). *The seven cultures of capitalism: value, systems for creating wealth in the United States, Britain, Japan, Germany, France,*

Harris, P. (2006) Beware of the Boomer Brain Drain! T + D; 60, 1; ABI/INFORM Global, p. 30 – 34


Jorgensen, B. VOL. 7 NO. 1 2005, pp. 61-76. The ageing population and knowledge work: a context for action. Foresight. VOL. 7 NO. 1 2005, pp. 61-76


