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Management of Creative Business Processes (CBP),
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Assessment of employees' attitudes and intentions to share knowledge based on their individual characteristics

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EXECUTIVE SUMMARY

This master's thesis elucidates on the importance of individual characteristics of employees in the relationship between communication and motivation factors and employees' attitudes and intentions of sharing knowledge. This assertion is rooted in the growing argument that knowledge sharing is highly dependent on the individuals' willingness to share with others what they know. A tendency that has risen out of the considerations that knowledge is mostly embodied in individuals' minds, thus difficult to express and share. Therefore, knowledge sharing within organizations seems to be still the exception rather than the rule. Having this as a point of departure and the fact that the literature focuses more on the technological systems as facilitators for knowledge sharing, I have chosen to investigate more in detail the people-focused approach.

It is argued that social interactions between individuals enhance knowledge sharing by getting to know each other and communicate. For this reason, a game (*typical*^{TM}*)* has been chosen to be played, as a practice of bringing people together and as a ground for a shared experience. More to the point, the game is based on the nine personality types system, called Enneagram, hence it has facilitated an easy and fun way to get insights about different personality traits and behaviors. Three groups of participants were observed while playing the game, while after it they were given a questionnaire that addressed their perspective on knowledge sharing and how the game contributed to their experience.

The theories applied for the present study span different scientific fields within the organizational behavior, e.g. personality traits, motivation, communication, management. Following the action research method to plan the study and select the data collection methods, valuable learning and knowledge have emerged.

The field experiment – game playing – provided for a significant finding, offering a shared experience, a point of departure for a better communication and understanding between individuals that further on facilitates knowledge sharing. However, no direct relation has been established between playing the game and the level of trust or the easiness to share knowledge. Nonetheless, the personality traits revealed preferred ways of communication, intrinsic motivation to share knowledge, along with the importance of knowing the persons with whom the knowledge is shared or of the relevancy of what is shared.

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1. INTRODUCTION

1.1 Knowledge era

Knowledge era. Knowledge. Information age. Intangible economy. Intangible assets. Intellectual capital. All these terms and concepts are very popular, buzzwords and fashionable words of today's organizational vocabulary. As Edvinsson (2002, pg. 34) pointed out "We now live in the intangible economy. Knowledge economics is the new reality. Minds matter." Intangibles are the driving force of the new knowledge economy. They are represented by the human, relational and structural capital (Starovic & Marr, 2003). Human capital defines employees' knowledge, skills and expertise which can be expressed by their creativity, capacity to solve complex problems, their ability to work in teams, to learn, communicate and improve constantly. Relational capital stands for business collaborations, customer loyalty, brands and reputation. Whereas structural capital relates to organizational routines, cultures, procedures and norms.

The increased focus on intangibles emerged as a response of companies performing their activities at a new global competitiveness level and at a point in time where changes in the information and communication technology are happening faster than ever before. Hence, the need to add value to their products, services and actions through innovation and differentiation arises.

Among all the intangibles knowledge is considered to be the one that provides companies with competitive advantage and differentiation (Prahalad & Hamel, 1990); (Probst, et al., 1998). It is thought as one of the core competences of a company, as it is developed and spread throughout all spheres of the organizations. Either embedded in individuals' mind, organizational routines and norms, or technological systems, knowledge constitutes an advantage almost impossible for competitors to replicate. Its uniqueness relies in the fact that the more knowledge is applied and shared, the more it grows and develops (Prahalad & Hamel, 1990).

People now are knowledge seekers, with a strong desire for learning new things, developing new skills and capabilities. Their enthusiasm for knowledge is of significant importance for an organization, as they are intellectually curious and open to new experiences, contributing

to an easier adaptation of the company to the rapid changes and challenges of the present (Leonard-Barton, 1998); (Davenport & Prusak, 2000). Individuals' knowledge behaviors in the workplace are very diverse, from identifying and using relevant knowledge which resides in their colleagues and databases, connecting to the knowledge resources, people and discussions, to contributing and sharing their knowledge back (Littlejohn, et al., 2011).

1.2 Problem identification

Thereby, knowledge is created, disseminated, applied, acquired and shared at all times within an organization (Nonaka, 2007). The point of interest for the present study is on the knowledge sharing process, more precisely on the social interactions between individuals which foster knowledge sharing. The present management literature focuses more on tools such as technological systems as facilitators for knowledge sharing. Thus there is a lack of empirical studies that pay attention to people behaviors, motives and characteristics when it comes to the sharing of knowledge.

Knowledge is transferred in organizations whether or not the process is managed at all, argue Davenport & Prusak (2000). Employees interact and communicate daily. Their conversations, team work, e-mails and meetings constitute nothing else than means of sharing knowledge to complete their tasks, to solve problems and learn. Improved relationships between employees, better communication ways and an increased level of trust are factors that enhance knowledge sharing.

Furthermore, sociability is one of the core characteristics of human beings, organizing their life around their relations with other people. The more they get to know each other – they acknowledge each others' feelings, emotions and behaviors, the more they will be able to communicate effectively. Each individual comes with his/her unique set of ideas, perspectives and work style. Effective communication means not only being able to express them as accurate as possible, but also being able to understand and accept other points of view and opinions.

Individual factors, e.g. personality traits, organizational factors, e.g. climate and culture, and demographical factors, e.g. education, age, gender, all influence employees' motives and

willingness to share knowledge. Since knowledge sharing is highly dependent on their willingness to share to the other what they know, organizations can only facilitate and promote the process of knowledge sharing through effective knowledge management practices.

1.3 Research purpose

The researcher wanted to improve her learning and knowledge on the basis of the above mentioned aspects, and in the same time, give rise to creative discussions about knowledge management practices, e.g. interactions, shared experiences, language and trust, meant to facilitate and enhance knowledge sharing.

The purpose of the thesis is thus to identify and assess whether individual characteristics and behaviors moderate the relationship between communication and motivation factors and employees' attitudes and intentions of sharing knowledge. The more employees know each other, understand each others' motivations and differences in the way they behave, react, communicate and work, the more they will collaborate, communicate and share knowledge efficiently together. For this reason, a game (*typical*^{TM}*)* was examined as a creative knowledge management practice, getting individuals together to interact, exchange information and have fun. *Typical*^{TM} uses a nine personality types system, called Enneagram, and it has been developed with the scope of improving the interpersonal and intrapersonal skills of individuals, raising awareness of different behaviors and personality traits, hence paving the way to better communication and further on for better knowledge sharing.

1.4 Research Question

How individual characteristics moderate the relationship between communication and motivation factors and employees' attitudes and intentions of sharing knowledge?

- **What kinds of behaviors and practices enhance the knowledge sharing process?**
- **How does communication and employees getting to know each other better influence the share of knowledge?**
- **What motivates employees mostly to engage in knowledge sharing?**

Individual characteristics refer to employees' personality traits, self-efficacy, perceptions about knowledge and demographical factors. Kinds of behaviors and practices include ways of communication, trust, team work and games. The research is oriented only towards the intrinsic motivations to share knowledge.

1.5 Structural outline

The thesis is divided into seven chapters. Figure 1.1 below illustrates the contents of the chapters as a guideline for the readers.

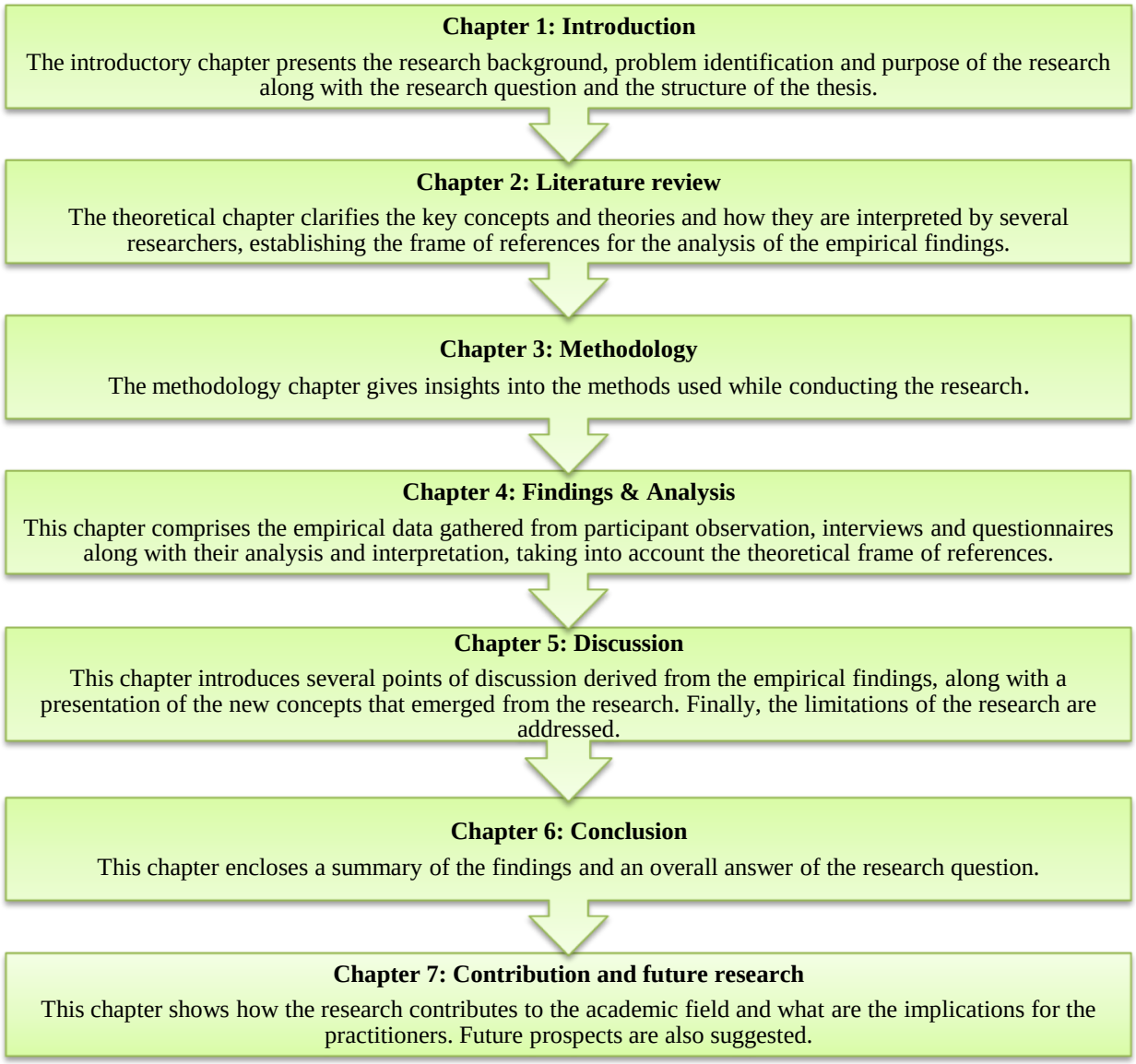

Figure 1.1 Structure of the thesis
(source: author's illustration)

2. LITERATURE REVIEW

This chapter provides a literature review of the existing research concerning the topic of interest, knowledge sharing within organizations, respectively, employees' behaviors and motivations to share knowledge. Moreover, the theoretical concepts used in the present study, illustrated by the literature map below (Figure 2.1), will be discussed.

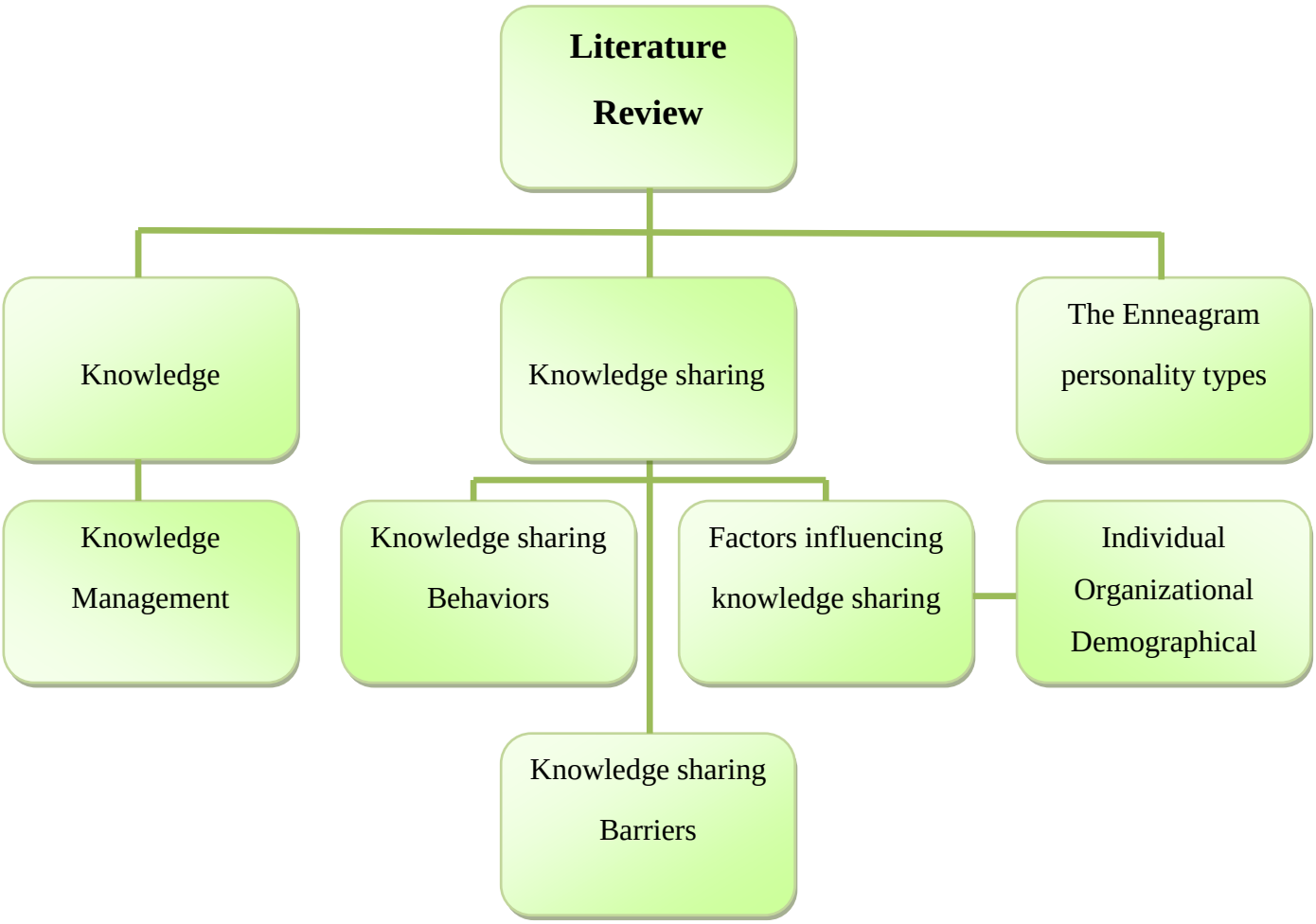

Figure 2.1 Literature map
(source: author's illustration)

2.1 The Knowledge Concept

In today's economy faster is the new fast. Ideas are the new currency of the present as Edvinsson (2002) points out. Ideas provide for new ways of looking at things and new directions for development. Thus, organizations now, more than ever focus on their

intangible assets, such as knowledge, skills and competencies, relationships, reputation and trust, culture and values. Moreover, the emergent knowledge management literature comes with the statement that resources like technology and machinery are no longer the main production factor, but intellectual capital, e.g. knowledge, which contributes to a greater extent to the economic growth (Kalling & Styhre, 2003). The contemporary society is shifting from the tangible-driven economy towards a more symbol-based, intangible-driven economy (Edvinsson, 2002); (Kalling & Styhre, 2003).

In the battle for competitive advantage companies must rely on resources that cannot be easily imitated by competitors. They consist of knowledge, capabilities, organizational processes, firm attributes, as introduced by the resource-based view (RBV) of the firm (Probst, et al., 1998). According to the RBV theory, the development of unique resources and core competences (Prahalad & Hamel, 1990) will provide an organization for competitive advantage and differentiation on the market. Their uniqueness is based on the fact that competencies are not depreciating as they are used and shared. On the contrary, they grow (Prahalad & Hamel, 1990) and develop, offering the company new perspectives and ways to innovate. Furthermore, conforming to the RBV of the firm, strategic resources of the organization must possess the following features: they must be valuable, rare, hard to imitate by competitors and also difficult to find substitutes to them (Probst, et al., 1998).

Among the strategic resources of a company, organizational knowledge is one of the most valuable intangible assets, as knowledge is developed and spread throughout all spheres of the organization, making it difficult to imitate (Kalling & Styhre, 2003); (Argote & Ingram, 2000). Either located in the minds of the individuals, embedded in organizational routines and norms, or stocked and codified in databases and technological devices, knowledge enables the development of new competences, products and services (Choo, 1998). However, the organization is not only a repository for knowledge, but likewise, an arena wherein knowledge is applied, shared and further developed (Kalling & Styhre, 2003).

2.1.1 Tacit versus Explicit Knowledge

Nonaka (1994) proposes two dimensions of knowledge, *tacit and explicit*. **Explicit knowledge** or "codified" knowledge (Nonaka & Takeuchi, 1995) can be easily communicated and diffused. It is codified into symbols, such as numbers, formulas and

words, or into physical items, like documents, databases, photographs and procedures (Choo, 1998). Explicit knowledge is formal and highly impersonal (Lahti & Beyerlein, 2000).

The **tacit knowledge,** also known as 'personal knowledge' (Polanyi, 1966), involves intuition, values and viewpoints that individuals gather through years of experience (Lahti & Beyerlein, 2000). Thus, it is highly subjective, and therefore hard to be verbalized and codified. Tacit knowledge can be both technical and cognitive (Nonaka, 1994). The technical part involves the know-how and specific skills that individuals use in their work. By contrast, the cognitive element of the tacit knowledge consists of beliefs, values and analogies of the environment the individual is part of. Hence, being mainly acquired through practice, tacit knowledge is rooted in action and involvement into a specific context (Nonaka & Takeuchi, 1995). Or as Polanyi (1966) states: "we can know more than we can tell" (p. 4).

Nevertheless, explicit and tacit knowledge are not separate within an organization. On the contrary, they complement each other and expand through people's interaction and social activities (Nonaka & Takeuchi, 1995). The following two matrixes (Figure 2.2 & Figure 2.3) show how social interactions enhance the expansion of knowledge and which activities and mechanisms support each knowledge conversion. Although tacit knowledge is not easily transferable, Polanyi, as cited in (Sveiby, 1996) argues that personal knowledge can be shared through imitation, identification and learning-by-doing. All these activities are performed by individuals within the organization acting as the "social formation which controls significant amount of knowledge" (Kalling & Styhre, 2003, p. 60).

	Tacit knowledge	to Explicit knowledge
Tacit Knowledge	Socialization	Externalization
from Explicit Knowledge	Internalization	Combination

Figure 2.2 Knowledge conversions (source: (Nonaka & Takeuchi, 1995))

	Tacit knowledge to	Explicit knowledge
Tacit knowledge from	Apprenticeship On-the-job trainings Coffee breaks Group work	Dialogue Use of metaphors and analogies, concepts and models
Explicit knowledge	Experience Learning by doing	Documents Meetings Telephone conversations Computerized communication

Figure 2.3 Knowledge mechanisms
(sources: (Nonaka & Takeuchi, 1995); (Mouritsen & Larsen, 2005))

2.2 Knowledge Management

Since knowledge has became one of the most important intangible assets of an organization, triggered the need to create more knowledge, utilize it efficiently and improve it. Consequently, Knowledge Management (KM), as an organizational practice, became popular and fashionable (Alvesson, 2004) among organizations. KM is seen as a method through which is added or created value to the organizational processes by leveraging the existing knowledge within firms.

Knowledge Management points out two approaches, one that is IT focused and one that is people-centered (Alvesson & Kärreman, 2001). The techno-centric approach is the most popular and used, due to the rapid progress of technology, along with the low cost of computers and networks, that has created a potential infrastructure for knowledge exchange (Davenport & Prusak, 2000). The computerized networks, such as internet, e-mails and intranets, connect people, enabling the knowledge sharing process (Alvesson, 2004); (Davenport & Prusak, 2000). However, the emergent application of information technology is only a storage tool, quick and economically wise though, for the exchange of knowledge.

On the other side, there is the people-focused approach that acknowledges that knowledge is highly people-based and sees KM as a matter of "connecting people so they can think together" (McDermott as cited in (Alvesson & Kärreman, 2001, p. 996)). The focus here is on social interactions between individuals, and their communication.

Nevertheless, KM is not a very easy concept to be defined, to which Mc Dermott as cited in (Alvesson, 2004, p. 168) has associated four challenges:

1. a technical challenge of designing human and information systems that make information available and help people think together
2. a social challenge of developing communities that share knowledge and maintain diversity
3. a management challenge to create an environment that truly values sharing knowledge
4. a personal challenge of being open to the ideas of others and to share ideas

The technical challenge has been the most discussed by practitioners and applied by organizations through IT systems (Alvesson, 2004) whereas the social and personal aspects are not so commonly approached in studies. As for the managerial challenge, it is not only the managers' efforts that count, but the common engagement and involvement of all employees, thus very difficult to achieve.

2.3 Knowledge Sharing

Following the above mentioned characteristic of an organization, as a repository and arena for knowledge creation and sharing, a significant question arises which is being discussed by several authors. How can the organization share knowledge efficiently with the effect of developing new products and achieve competitive advantage?

Several authors (Argote & Ingram, 2000); (Foss, et al., 2010) agreed upon the fact that knowledge sharing is highly beneficial to the organizations, providing for improved innovation capacity, greater problem-solving capacity, new knowledge and capabilities, all of these sustaining the competitive advantage of the organization.

To answer the above asked question, Davenport & Prusak (2000) came with a very simple suggestion: “Hire smart people and let them talk to one another” (p.88). In their opinion, the transfer of knowledge is taking place within the organization as a natural routine, either when the members of the organization communicate with each other or work together (Kalling & Styhre, 2003). Everyday dialogue is a means of knowledge sharing and distribution within the organization. Therefore, the process of knowledge sharing should not be regarded as an additional organizational phenomenon, but as inherited in the daily activities performed by the members of the organization (Huysman & Wit, 2002).

Likewise Polanyi’s saying that knowledge is shared through imitation and learning-by-doing, especially when the tacit knowledge is concerned, Trade, as cited in (Kalling & Styhre, 2003) argues that conversations between individuals facilitate imitations and inventions. They drive “social evolution” (p.67) as conversations are strong means of invention and proliferation of ideas, feelings and modes of action. Consequently, face to face interaction and spoken communication are the successful application and sharing of knowledge and skills acquired throughout organizational experiences (Polanyi, 1958).

As a result, knowledge sharing within the organization should not be considered a difficult, time consuming and out-of-the-ordinary process, but more as a routine, costless, and instantaneous (Huysman & Wit, 2002); (Szulanski, 2000). Moreover, Huysman & Wit (2002) conclude that individuals cannot be forced to share knowledge. They are the ones that take the decision to share their knowledge and also they chose the persons with whom they will share it. Knowledge sharing is highly dependent on the willingness of the individuals to share with others what they know. Consequently, organizations can only facilitate and promote the process of knowledge sharing.

2.3.1 Knowledge sharing practices

This can be formulated as effective knowledge management, which means the development of specific practices meant to facilitate and encourage knowledge sharing (Cabrera & Cabrera, 2005). The authors mention some methods that could be used in this regard: interactions and connections, shared language and trust. All these go hand in hand as the more individuals spend time together, the more they interact and communicate to one

another. This results in a shared language and understanding of each others' emotions and behaviors, followed by an increased level of trust. This in the end leads to better opportunities to share knowledge.

Among the knowledge management practices that are supposed to facilitate and encourage knowledge sharing, Cabrera & Cabrera (2005) illustrate work design, employees working around teams, giving them the opportunity to work closely, interact, enhancing the need for sharing their knowledge between them. The participation to trainings and games is also a good way of increasing employees' level of self-efficacy, encompassing learning and developing new skills, such as communication skills, role-playing and coaching. In addition, interpersonal communication, face-to-face discussion grants a rich means for knowledge exchange, as well as fosters trust. Since interpersonal communication is used for gather information, build and preserve relationships, make sense of each other's experiences, illustrate personal emotions and desire, as well as understand those of others, influence and make decisions, or solve problems, anticipate and visualize behaviors (Sethi & Seth, 2009).

Therefore, the movement of knowledge between individuals, and between them and the organization relies significantly more on employees' knowledge sharing behaviors than on organizational context (Bock, et al., 2005). If the organization is not built around a knowledge-friendly culture from the beginning, then no technology-wise or alike system will foster the share of knowledge (Huysman & Wit, 2002).

Burges (2005) also argues that there is the tendency of the organization to focus mainly on tools, like implementing different collaborative software for knowledge sharing, or on tasks, such as organizational routines and norms (Prusak & Cohen, 1997); (Argote & Ingram, 2000), and pay less attention to the interactions between people and their characteristics and motivations as knowledge sharing facilitators. Consequently, one of the major reasons why knowledge sharing is still a challenge, the exception rather than the rule (Bock, et al., 2005), is that knowledge is embodied in individuals and therefore, they are the ones making choices about sharing their knowledge.

2.4 Knowledge sharing behaviors

Besides the question related to the efficient knowledge sharing process, there is another one, strongly correlated with it, that is being researched, namely, which are the individual drivers for the knowledge sharing behavior in organizations.

The process of knowledge sharing consists of three different elements (Ho, et al., 2009, p. 1212): 1.objects – referring to the kind of knowledge which is being shared; 2.the way of sharing – including face-to-face, networks, conference and organizational learning, and 3.level of sharing – involving individuals, teams and organizations.

Elaborating on individual organizational attitudes and behaviors influencing the knowledge sharing, several authors (Haslamu & Fiske, 1999); (Bock, et al., 2005); (Bock & Kim, 2002); (Cabrera & Cabrera, 2005) introduced a number of theories with the purpose of explaining people's knowledge sharing behavior. They will be presented in the following section of the present paper, along with the factors that are likely to stimulate or encourage such behaviors.

2.4.1 Extrinsic and Intrinsic motivation

The individual-level motivation is particularly important when individuals' willingness to share knowledge is assessed (Welschen, et al., 2012). Extrinsic and intrinsic motivations are the categories that have been investigated throughout studies and researches (Lin, 2007).

From the extrinsic motivational standpoint, individuals are driven by the perceived value and benefits which pay off their time and effort spent on sharing their knowledge with others. Organizational rewards, e.g. bonuses, promotion, job security, and reciprocity are the main extrinsic factors that motivate them to engage in knowledge sharing (Lin, 2007). Reciprocal relationships have been indicated as supportive for knowledge sharing as well. If employees believe that they will receive help, e.g. knowledge, in return from others by sharing their knowledge, they are more likely to perceive knowledge sharing as beneficial. Thus they have higher intentions to share knowledge. (Bock & Kim, 2002); (Lin, 2007); (Cabrera & Cabrera, 2005)

From the intrinsic motivational standpoint, individuals engage in activities like knowledge sharing for its own sake, if it is interesting and stimulating, out of interest or for the pleasure

and satisfaction derived from experience (Lin, 2007, p. 137); (Foss, et al., 2009). Empirical studies have concluded that factors like self-efficacy (the feeling of competence), development and the enjoyment when helping others are drivers for intrinsic motivation that enhance knowledge sharing (Foss, et al., 2009); (Welschen, et al., 2012). Competence can help motivate employees to share knowledge with their colleagues. It contributes to the feeling that they help others to solve specific tasks and problems at work with their knowledge that is valuable and useful. Furthermore, employees are intrinsically motivated to contribute with and receive knowledge as they engage in intellectually stimulating and challenging activities. Thus, this experience adds meaning and value to their development and learning (Lin, 2007); (Welschen, et al., 2012).

2.4.2 Relational Models Theory (RMT)

Knowledge sharing is a social phenomenon which happens when people interact with each other within the organization. Therefore is not the individual behavior towards the process of knowledge sharing that should be analyzed, but his behavior in a relational context (Boer, et al., 2011). The RMT points out that sociability is one of the central characteristics of human beings, and accordingly they have the tendency to organize their social life in terms of their relations with other people. Besides, conforming to the RMT, individuals always want to make relationships, commit to them, as well as maintain, judge and adjust them (Fiske, 1992).

Social interactions among employees, e.g. work collaborations and knowledge sharing give rise to emotions, which in turn drive their behaviors (Cox, 2011); (Barczak, et al., 2010). Furthermore, emotions are seen as an individual asset, namely the emergent emotional intelligence individual competency (Cox, 2011). Emotional intelligence (EI) is argued to enable employees to identify, comprehend and employ their emotions and feelings as well as their co-workers' (Salovey & Mayer, 1990). Thus, EI positively contributes to their ability to be socially effective, and to a better understanding and handling of their relationships at work (Cox, 2011). This refers to the employees' skills to communicate with one another and to consider multiple opinions. Consequently, the awareness of each other emotions, that is the EI characteristic of employees, leads to stronger relationships between them, thus fostering the level of trust and better knowledge sharing (Barczak, et al., 2010).

There are four dimensions of emotional intelligence, which reflect both an intrapersonal and interpersonal component, meaning abilities to conduct ourselves and to conduct relationships (Khalili, 2012). According to Goleman (1998) as cited in (Khalili, 2012, p. 366) the following competencies can be distinguished:

1. Self-awareness which includes recognizing one's emotions and their effects, the emotional self-awareness, followed by an accurate self-assessment of one's strengths and limits, which may lead to self-confidence, a good sense of one's self-worth and abilities.
2. Self-management deals with self-control and adaptability to different situations and emotions, along with skills like trustworthiness, being proactive and achievement-oriented.
3. Social-awareness means understanding others' emotions and showing empathy towards others' perspectives, along with a service orientation of helping others, like customers and colleagues.
4. Relationship management refers to abilities like teamwork and collaboration, conflict management, develop, influence and inspire others.

The emotional nature of individuals working together is thus a very important aspect of the knowledge sharing process. This means knowing each other, communicating effectively, understanding each other feelings, and accepting multiple and divergent points of view. In addition, emotional self-awareness is argued to positively influence the knowledge sharing process, as individuals' self-confidence triggers their ability to freely express new ideas and perspectives to others (Cox, 2011).

There are four basic forms of relations: *communal sharing, authority ranking, equality matching and market pricing.* The **communal sharing** (CS) type organizes relationships based on solidarity, belonging and conformity. All members are treated equally, seeking the sense of the group, sharing what they can and taking away what they need freely and naturally (Fiske, 1992). People in a CS relation have an attitude of considering resources such as knowledge to be common, thus sharing it within the team without asking for something in return (Boer, et al., 2011); (Lin, et al., 2012). The factors behind the willingness to share knowledge within the CS are based on trust and altruism according to Lin et al. (2012). Altruism characterizes people that are passionate about what they know and are willing to

share it anytime with people of their own kind, as it happens within CS. In addition, trust is of major importance as individuals want to identify themselves with the group, and hence encourage the knowledge sharing behavior (Lin, et al., 2012); (Fiske, 1992).

On the contrary, in an **authority ranking** (AR) relationship there is no such equal relation. Instead there is an asymmetry among individuals that are hierarchically positioned (Boer, et al., 2011); (Lin, et al., 2012). Therefore, knowledge is perceived as a tool to demonstrate rank differences (Boer, et al., 2011). The AR relation is based on power and status (Fiske, 1992). People situated on a higher position are authorized to command, dominate, and protect, whereas the lower-ranked individuals are expected to obey, show loyalty and respect (Haslamu & Fiske, 1999). With regard to the knowledge sharing, those who are higher in ranking will request to share knowledge and the lower will follow. The willingness to share knowledge in AR relations resides exactly in the knowledge each member possess, which gives him different kind of power, like expertise power, coercive power, reward power and so on (Lin, et al., 2012).

The third kind of relationship is **equality matching** (EM) which is based on a balanced, in-kind reciprocity, as Fiske (1992) defines it: "give and get back the same thing in return" (p.694). Thus, knowledge sharing within EM is based on the exchange of similar knowledge, in the desire for equal treatment and reciprocity (Boer, et al., 2011). People provide support to others and they expect to be rewarded or to receive something equal in return, and hence fostering their willingness to spend time and effort on knowledge sharing. Moreover, there is a matter of trust, respect and reputation that is developed out of this kind of relationship (Lin, et al., 2012).

Finally, the **market pricing** (MP) model points out the proportionality between what is given and what is received in terms of monetary rewards (Fiske, 1992). Knowledge is seen more as a product that has a material value (Boer, et al., 2011). Individuals will share knowledge only if they believe they will receive a satisfactory and considerable compensation. Extrinsic rewards are the factors that influence the knowledge sharing behavior within MP (Lin, et al., 2012).

2.4.3 Economic Exchange Theory (EET) and Social Exchange Theory (SET)

From the above mentioned theory derive other two theories which are meant to reveal the classification of extrinsic and intrinsic rewards related to knowledge sharing behavior. They are the Economic Exchange Theory (EET) and the Social Exchange Theory (SET). According to EET, individuals will share knowledge if the rewards for it will be higher than the 'cost' (time, effort) invested in it (Bock & Kim, 2002). Expected rewards and incentives such as bonuses, promotion or the opportunity for further education are supposed to positively influence employees' knowledge sharing behavior (Lin, et al., 2012); (Bock & Kim, 2002).

Whilst EET focuses on the extrinsic factors, SET relates to the intrinsic benefits that arise from the sharing of knowledge, namely the expected association, which relies on trust, friendship, reputation and respect. When sharing, trustworthiness will be proved, as a basis of the future social relationships (Lin, et al., 2012); (Bock & Kim, 2002).

2.5 Factors influencing knowledge sharing behavior

Furthermore, Bock et al. (2005) add other motivational drivers for knowledge sharing behavior to the already mentioned classification offered by the economic and social exchange theories. They included the psychological dimension to the social exchange theory, by arguing that individual sense of self-worth and -efficacy is enhancing knowledge sharing. People will feel confident of their ability to provide valuable and useful knowledge to the organization (Lin, 2007). If individuals consider their knowledge to be useful to the others, they will be more likely to make the effort to share it. Thus, the level of sharing increases when individuals believe that their contribution makes a difference and their level of self-efficacy is high, according to Cabrera & Cabrera (2005).

Moreover, the authors (Bock, et al., 2005) add the sociological perspective, which implies the organizational climate and institutional structures, like norms, rules and beliefs as contributing to the employees' willingness to share knowledge. Nonaka (1994) argues that autonomy, information redundancy, creative chaos and requisite variety are among the conditions to be fulfilled by the organizational climate and culture to enable the process of knowledge creation and sharing. As well, an environment with high levels of trust and social

interaction promotes a culture of innovation and knowledge sharing (Connelly & Kelloway, 2003).

A culture that values creativity and innovation should give autonomy and freedom to employees to discover and experiment new knowledge (Choo, 1998). In an environment where employees socialize and interact frequently, with little regard to their organizational status, they become knowledgeable about the resources they can find in their colleagues (Connelly & Kelloway, 2003). This in turn inspires them to share their knowledge, help each other, with the result of increasing the importance of information redundancy when achieving optimal results. Redundant information provides also for new perspectives when it comes to problem solving.

Additionally, social interaction, which can stand for face-to-face contact in informal atmosphere, supported by the organization (e.g. coffee breaks, after work food and drinks) fosters mutual trust. The influence the level of trust has on knowledge sharing behavior will be scrutinized further on in the section that reviews barriers in the process of knowledge sharing.

The existence of strong social norms within the organization meant to promote the importance of knowledge sharing among employees represents as well a useful tool to enhance employees' willingness to share their knowledge (Cabrera & Cabrera, 2005). These norms are usually transmitted through storytelling, rituals and socialization activities within the organization. According to Kalling & Styhre (2003), stories in organizations are always changed and improved upon. People integrate new facts and events to the initial story, adding new interpretations to it, so it better suits each of them. Thus, storytelling stimulates creativity, brings new perspectives, fostering knowledge sharing.

2.5.1 Personality traits

Another individual aspect which is examined in several researches is the personality traits. Studies show that individual differences related to their personality are highly correlated to work behaviors, e.g. job performance and job satisfaction (Judge, et al., 2002) and implicitly with knowledge sharing behavior (Matzler, et al., 2011); (Gupta, 2008); (Mooradian, et al., 2006).

According to Judge et al. (2002), personality features influence employees' behavior at work with regard to social interaction, motivation to achieve satisfying results and learning.

McCrae & John (1992) introduced the **five-factor model of personality**, organizing personality traits in five dimensions: *extraversion, agreeableness, conscientiousness, neuroticism* and *openness to experience.*

Extraversion is the dimension that attributes adjectives like active, energetic, outgoing and talkative to the people that are high in extraversion (McCrae & John, 1992). Extraverts are also confident and seeking for excitement, possessing the social skills and the wish to work with others, which implies that they could be more involved in knowledge sharing (Gupta, 2008). However, Gupta's (2008) study did not found a significant impact of extraversion on the knowledge sharing behavior of employees.

Agreeableness personality facet denotes individual characteristics like cooperativeness, helpfulness, tolerance, generosity and trust (Witt, et al., 2002). Agreeable people work very well in collaborative activities and in situations where joint action is needed (Gupta, 2008); (Witt, et al., 2002). As knowledge sharing is seen as a form of workplace collaboration, cooperation and helpfulness (Matzler, et al., 2008), agreeableness is therefore a strong predictor of helping behavior. Implicitly, it is one of the individuals' personality traits that positively influence knowledge sharing behavior within the organization (Matzler, et al., 2011); (Gupta, 2008). According to Mooradian et al. (2006), agreeable persons are also altruistic, and willing to help.

Conscientiousness is linked to attributes such as efficient, reliable, responsible and thorough (McCrae & John, 1992). Highly conscientious people are achievement-oriented, self-motivated, and task-oriented (Gupta, 2008). Hence, they are supposed to perform better at work, focusing to the work tasks and taking initiative in solving problems (Witt, et al., 2002). Moreover, they tend to engage in activities that are beyond their role and responsibilities, consequently they are expected to be more willing to share knowledge (Matzler, et al., 2011); (Gupta, 2008).

Neuroticism represents the personality element that defines the individual as anxious, unstable, concerned, worried and unsecured (Gupta, 2008); (McCrae & John, 1992). Experiencing such negative emotions, they are less likely to interact and engage in sharing activities.

Openness to experience describes persons as being imaginative, curious, artistic, and original (McCrae & John, 1992). Individuals with high level of openness have flexible thinking, thus valuing new ideas and perspectives (Matzler, et al., 2008). Therefore, they display a positive attitude towards learning and experiencing new things. As a result, Cabrera et al. (2006) argue that openness, as "a reflection of an individual's curiosity and originality, could be a predictor of seeking other's people insights" (p.248), hence a robust predictor for knowledge sharing.

2.5.2 Demographical factors

Further on, the literature review will focus on the demographic factors, like gender, education, culture and age in relation to the process of knowledge sharing.

With regard to **gender**, there are both studies that illustrate that it has an impact on knowledge sharing behavior, and that gender does not influence significantly individuals' behavior. Gender prescribes specific behavior patterns and helps to understand the social behavior of men and women (Lin, 2008). The attributes of men's organizational behavior are known to be individualism, competitiveness and self-promotion (Miller & Karakowsky, 2005). Men's perception of seeking knowledge and feedback from their colleagues is one of dependence and loss of control. Therefore, they tend to avoid such situations of knowledge sharing (Miller & Karakowsky, 2005), unless benefits like improved performance and success arise from them (Lin, 2006). On the contrary, women's level of altruism is higher than men's, their attributes being kindness, understanding and consideration (Lin, 2008). Thus, women may be more predisposed to engage in knowledge sharing, as they also perceive differently the benefits of the process. For women, support and close social relationship with co-workers represent benefits of sharing knowledge (Lin, 2006). Consequently, they tend to seek and share knowledge more directly than men (Miller & Karakowsky, 2005).

Furthermore, **cultural** dimensions, e.g. power distance, uncertainty avoidance, masculinity, individualism, and long term orientation (Michailova & Hutchings, 2006), are argued to influence the knowledge sharing patterns. Among them, individualism-collectivism is the central dimension (Ardichvili, et al., 2006); (Michailova & Hutchings, 2006); (Bhagat, et al., 2002). Individualism behavior characterizes people that are independent, not strong connected to others (Bhagat, et al., 2002). In addition they place their goals, preferences and needs above those of the others, e.g. organization (Ardichvili, et al., 2006).

On the other hand, collectivism defines individuals closely linked to other, being part of collectives, e.g. co-workers, family, organizations, groups (Bhagat, et al., 2002). Characteristics like solidarity, interdependence, loyalty, and identification with the group are defining for people in collectivistic cultures (Michailova & Hutchings, 2006). When it comes to knowledge sharing, people in individualistic culture consider each piece of knowledge as independent, whilst those in collectivistic culture see the entire context where knowledge relies. Moreover, individualists put more focus on explicit, codified knowledge than collectivists, acting more rationally when sharing knowledge (Bhagat, et al., 2002).

Employee **age** is considered to have an impact on the willingness to share knowledge, as studies show (Riege, 2005); (Sveiby & Simons, 2002). The age difference is supposed to influence the most the sharing of knowledge. First, in terms of the age compatibility of employees working together, the more they are closely in age the more they will engage in knowledge sharing. Second, older employees are thought to have more experience in knowledge sharing and a larger network of colleagues to share knowledge with. However, the younger employees might be more open to the new means of sharing knowledge than the older ones that sometimes might show resistance. (Sveiby & Simons, 2002)

Lastly, **educational** level is also regarded as a variable that influence knowledge sharing among employees (Sveiby & Simons, 2002). The authors argue that employees possessing a higher level of education are more likely to share knowledge, as they easily can access knowledge and interpret the one shared and received.

To summarize the motivational drivers influencing the willingness to share knowledge and the employees' knowledge sharing behavior within the organization Figure 2.4 was drawn.

Individuals' behaviors and motivations are of significant importance when analyzing their willingness to share knowledge within the organization, as the researches express. Hence, many organizations have already begun to use the Enneagram instrument, which is argued to facilitate a better understanding of people's motivation and working styles, and problem-solving techniques (Bland, 2010).

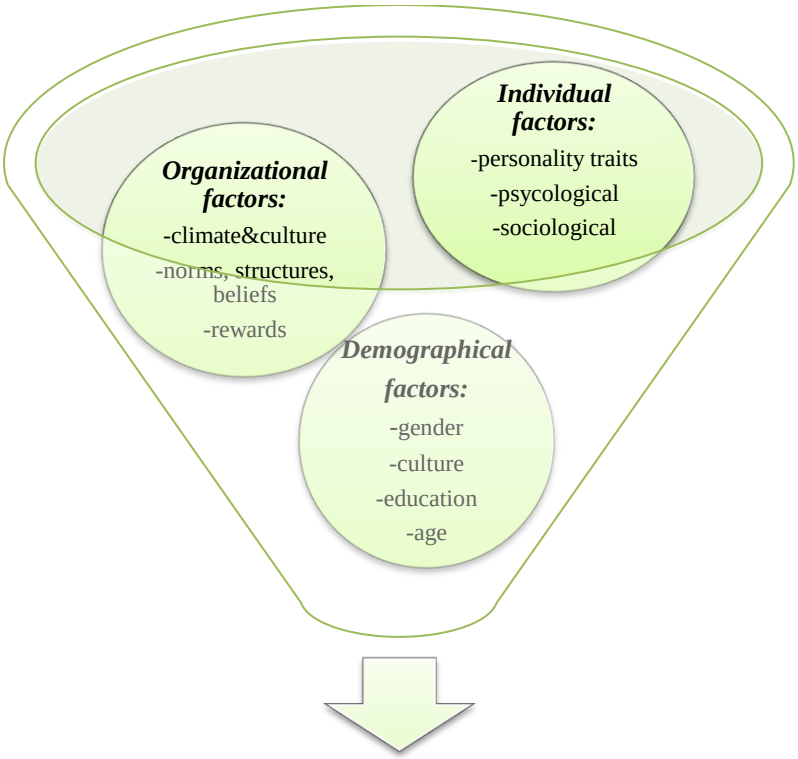

Figure 2.4 Factors influencing knowledge sharing
(source: author's illustration)

2.6 The Enneagram

The Enneagram is a personality system of nine types, which roots come from the Greek word for nine (ennea) and figure (grammos) (Matise, 2007). The Enneagram is represented by a nine-point star, each point referring to a personality type or a character orientation (Bland,

2010). Conforming to the Enneagram model, each individual is likely to represent all nine personality styles, but with one more naturally expressed than the others (Matise, 2007). All types are treated equally, no one type is better than other, but each person respond to and perceive the reality in one of the nine styles. According to Matise (2007, p.39), each type of personality can reveal: (a) individual's view of the world, (b) the kinds of choices individuals are likely to make, (c) the values they hold, (d) their sources of motivation, (e) how they react to people, and (f) how they respond to stress.

Within the organization, the Enneagram is used as a tool for a better understanding of the patterns of how an organization works (Andrews & Knowles, 2011). Even though a job can be done by different people in the same way, each of them comes with a totally different perspective when performing the job. The Enneagram thus provides a descriptive map of people's different perspectives and possibilities for them to better understand and relate to one another (Bland, 2010).

2.6.1 Description of the Enneagram personality types

Type 1 – The Perfectionist

Perfectionists focus on being good and always right. They have strong principles, high standards and the constant desire of improvement. Their challenges comprise of criticism, even for themselves, fear of errors and the tendency for order and control. However, they are responsible, intelligent and ethical. (Bland, 2010); (Matise, 2007); (Colina, 1998)

Type 2 – The Helper

The Helpers' attributes are caring, friendly, generous and self-sacrificing. They set the others' needs first, and they like to be needed and help others to achieve success. They are altruistic, agreeable and optimistic, always being concerned with how they are perceived by others. (Bland, 2010); (Colina, 1998)

Type 3 – The Winner

Winners are also called Performers or Achievers. They are very competent, determined, energetic and ambitious, oriented towards self-development and advancement. They focus on

productivity, results, goal and image, thus they are struggling to get their job done efficiently. Hence, they are extremely competitive with the tendency of work overload. (Bland, 2010); (Colina, 1998)

Type 4 – The Romantic

The Romantic or the Individualist seeks authenticity and uniqueness. They value emotional feelings and meaning in their work and relations with others. Therefore, they can easily be hurt, become vulnerable or moody. Nevertheless, creativity and the capability of renewing themselves characterize them. (Bland, 2010)

Type 5 – The Expert

Experts are also known as Observers or Investigators. On the opposite side of the Romantics, Experts are more analytic rather than emotional. They are independent, liking to work alone, and curious and innovative, always searching for novel perspectives to see the world. Moreover, they specialize into a specific subject or task, so they can play the role of experts. (Bland, 2010); (Matise, 2007)

Type 6 – The Realist

The Realist, the Guardian or the Loyal Skeptic is cautious, and wants to examine and evaluate all possible problems in the workplace. Realists are hard-working, loyal, and reliable, but they also doubt a lot, trying to understand the changes in the environment and discern what is good and bad for them and others. (Colina, 1998); (Bland, 2010)

Type 7 – The Adventurer

Adventurers are called Enthusiasts as they are always looking for new, exciting experiences. They are very optimistic, extraverted, and open to ideas. Still they are practical, productive, and committed. (Bland, 2010)

Type 8 – The Leader

Leaders or Challengers are looking for power and control over others, but in the same time they take care of and treat with generosity people in their charge. They tend to dominate and intimidate, standing out for themselves. (Colina, 1998); (Bland, 2010)

Type 9 – The Peace Seeker

Also known as Mediators, the Peace Seekers avoid and dislike conflicts, thus they are very supportive, trusting and stable. They are very good at bringing people together and minimizing all upsetting things, in the same time adapting and accommodating themselves with the views of others to maintain peace. (Bland, 2010); (Colina, 1998); (Matise, 2007)

Andrews & Knowles (2011) argue that the Enneagram tool helps people working together in the problem solving process. To effectively solve the tasks people have to be open to each others' different opinions and perspective, trusting, and trying not to take into consideration potential barriers.

Each personality style has its own intrinsic motivational and inspirational factors that influence their behavior at work (Kale & Shrivastava, 2001). *Ones* are motivated if they are given the power to improve and reform, establishing high standards and encouraging the role of mistakes as part of the learning and advancement process. *Twos* enjoy a friendly environment, where they can make a difference for the others, and feel appreciated. The inner motivation of *Threes* is based on winning and the recognition as them being the best, as they are following good results, efficiency, and success. *Fours* are the creatives type, thus they want to contribute to and deliver creative, insightful ideas to the job. The pursuit of wisdom is the internal force that motivates *Fives*. Hence, they need a space where they can present their ideas and visions, and opportunities to expend their knowledge base. *Sixes* like being committed to a cause or to great efforts in finding the most secure solutions to problems. *Sevens* are driven by an environment filled with unlimited options and possibilities. They desire to be involved in new projects, interact, communicate, develop and share new ideas. *Eights* think power and strength are valuable factors when performing a job, providing them with autonomy. *Nines* desire a harmonious work environment, based on support and understanding. (Colina, 1998); (Kale & Shrivastava, 2001)

2.7 Knowledge sharing barriers

Szulanski (2000) states that organizations possess more knowledge than they are aware they have, defining knowledge as "sticky" (p.10). This means that difficulty characterizes the

knowledge sharing process. Among the factors that influence the difficulty of knowledge sharing are the characteristics of: the *knowledge transferred*, the *source* or the *transmitter*, the *recipient* or the *receiver*, and of the *context* in which the transfer takes place (Szulanski, 1996); (Husted & Michailova, 2002).

Causal ambiguity and unproveness are the knowledge transferred attributes that cause difficulty in sharing (Szulanski, 1996), e.g. tacit knowledge that is embodied in individual skills, and therefore cannot be easily shared. Moreover, if the knowledge is proved to be useful and valuable is less difficult to share.

Furthermore, the individuals as knowledge sources may lack the motivation to share knowledge, as they are afraid of the potential loss of ownership, value and competitive advantage (Husted & Michailova, 2002); (Szulanski, 1996). The transmitters accumulate knowledge through years of education hence they believe their knowledge has a higher value than others with a lower level of education (Husted & Michailova, 2002). Moreover, already having so many tasks and responsibilities on their daily activities, they are not willing to spend more time and effort on sharing knowledge. In addition, trust contributes significantly to the process of sharing between the source and the recipient of knowledge (Szulanski, 1996). Similarly, the recipient of knowledge may be reluctant to look for or accept knowledge (Szulanski, 2000).

Moreover, Leonard-Barton (1998) talks about 'functional fixedness', which means that people have the tendency to be quite fixed in their perception of how things could be done and used. This is considered to hinder the process of knowledge sharing, as they are not open to new ideas and problem-framing approaches. The author implies that individuals also tend to choose familiar and comfortable methods of solving problems, which in turn deprives them from taking risks by sharing their knowledge and accept other (Leonard-Barton, 1998).

Husted & Michailova (2002) describe efficient knowledge sharing as a "contact sport" (p. 63), depending completely on people, and their engagement and involvement in the process. Therefore, relationships based on ***trust*** are the major focus point when it comes to knowledge sharing activities. Competence-trust and benevolence-trust are two dimensions of trust that encourage knowledge sharing (Abrams, et al., 2003). People tend to contact the individual in person for certain pieces of knowledge and advices (Huysman & Wit, 2002). Thus, it is

important that they feel confident that the contacted person has the correct knowledge, which is worth learning, and as well the person shares the same goals and cares about the other person's well-being (Abrams, et al., 2003).

Emotional intelligence is supposed to create trust among employees and team members. According to Barczak et al. (2010), the employees who can manage their emotions and those of their colleagues, being able to take into consideration all sides of an argument, show professional behavior, thus they are trusted for being competent and reliable. Moreover, they can empathize and provide their support if needed, thereby nurturing trust. In a trusting environment, employees show a bigger willingness to take risk by sharing their knowledge.

As a final point, the organizational context has also an influence on the eventfulness of the process of knowledge sharing. Internal norms and values may hinder or facilitate the transfer of knowledge (Szulanski, 2000). Husted & Michailova (2002) and Leonard-Barton (1998) introduced the concepts of mistakes and failures as being valuable assets for the organizational learning, which if not taken into consideration, hinder the knowledge creation and sharing. Experimentation and risk taking when exploring unknown things may have sometimes mistakes and failures as results. However, these should not be punished or hidden, as valuable knowledge and insights can come out of them. Mistakes should therefore be positively acknowledged and seen as learning opportunities both for the individual and for the organization (Riege, 2005).

2.8 Summary

The theoretical framework aims at facilitating the interpretation and understanding of the concepts presented by the literature, and applying them to a specific case. The following figure (Figure 2.5) illustrates the most relevant notions that conforms the vision of the study.

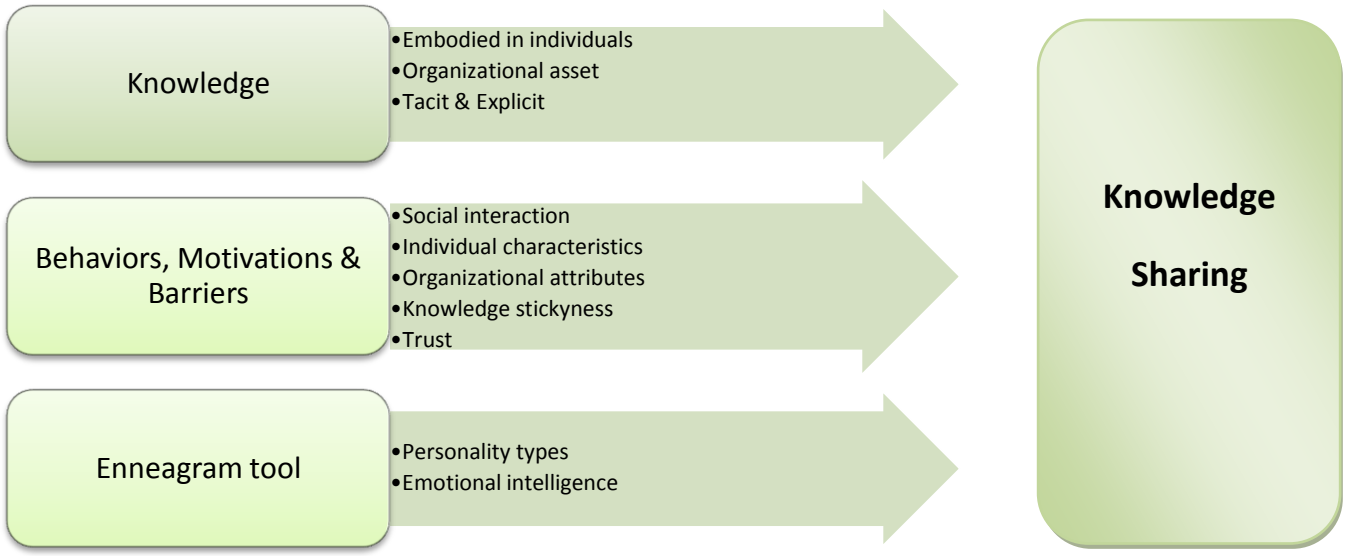

Figure 2.5 Theoretical concept summary
(source: author's illustration)

3. METHODOLOGY

This section gives an insight of the research process used when conducting the thesis. It elaborates issues related to research strategy, design and methods, as well as the data collection and analysis process. The methodological framework aims at facilitating a better understanding of the social world, providing a structure and methods for interpretation of the knowledge achieved through research.

3.1 Research strategy

For the present study it was chosen a *qualitative research*, as it involves the scrutiny of a social phenomenon (Esterberg, 2002), which is the process of knowledge sharing within organizations. As Esterberg (2002) argues, qualitative research studies the context in which social processes are taking place as well as those who take part in them, meaning people and organizations. Knowledge sharing is principally based on interactions and relationships between individuals, thus the scope of the study is to find out how does the individuals' personal characteristics influence the sharing of knowledge and what accounts for their willingness to do that. Consequently, qualitative research will give the researcher the possibility to find the meaning of events, and to describe and interpret the findings of the research (Bryman & Bell, 2003).

3.2 Research approach/philosophy

The design and directions of the study are dictated by the *epistemological philosophy* of defining and structuring the available knowledge. Moreover, the knowledge sharing process is researched following the *subjective direction* within epistemology, which views reality as being socially constructed, knowledge being available through individuals acting in a social context (Päivi & Kovalainen, 2008). According to Päivi & Kovalainen, this epistemological view is associated with the position called *interpretivism*, which is a method of studying the social world, by understanding the human actions and behaviors (Bryman & Bell, 2003).

Knowledge sharing is a social phenomenon, which implies individuals' interaction and involvement. Through an interpretive approach the researcher makes sense of the meanings

and behaviors that arise from people's actions regarding the process of knowledge sharing. In addition, the researcher creates its own meanings through a process of interpretation (Esterberg, 2002).

As methods of inquiry, social research uses two basic models, namely *deduction* and *induction*. The deduction approach looks first at the theory as a first source of knowledge, then the research proceeds from theory, through hypothesis, to empirical analysis. On the contrary, the induction approach starts with empirical research from which theories arise (Päivi & Kovalainen, 2008). The authors also argue that within qualitative research both methods are used at one level or another. There is no strict form necessarily suitable for qualitative research (Päivi & Kovalainen, 2008). Thus, the present study started out with the deduction model, by researching first the theory, as a frame for the empirical analysis of the individual characteristics and motivation behind the willingness to share knowledge within organizations. From a vast theoretical knowledge base, the researcher chosen concepts and theories to either justify or criticize them through empirical outcome, yet weaving back and forth between data and theory (Bryman & Bell, 2003).

By developing the frame of references from the literature review, the researcher interprets and explains the reality as comprehensive as possible.

3.3 Research design

Studying a phenomenon as knowledge sharing which implies individuals' interaction and dialogue, it is best to choose a research design where the researcher is actively involved in the process. Therefore, the action research design was preferred to plan the study and select the data collection methods. *Action research* is an approach that combines the researcher's collaboration with the organization and its involvement in the process studied. It is a phenomenon that occurs frequently in business research as Päivi & Kovalainen (2008) argue. The researcher both figure out the research questions from the practical, everyday life of businesses, and engage with and work within businesses. The researcher thus, becomes part of the field of study and can help them solve problems or give insight to strategic questions (Bryman & Bell, 2003); (Päivi & Kovalainen, 2008).

Action reasearch implies participative nature and concurrent with action characteristics, meaning that the action is made more effective by experimentation and learning, as Coughlan & Coghlan (2002) suggest. The researcher take both the role of an actor and of an observer.

The researcher of the present study actively participated in playing the ***typical!™*** game, knowing the interns, observing, communicating and giving feedback. She also took the role of an observer, when two other groups of people played the game. Thus, the action research method was used in order to understand the process of knowledge sharing, how it can be improved and what can be learned from it (Päivi & Kovalainen, 2008).

In addition, the outcomes expected from the action research are not concrete solutions and answers to immediate problems, but valuable learning from outcomes, that comes from the experiments performed, e.g. observing and playing the game with different groups of people (Coughlan & Coghlan, 2002); (McNiff, et al., 1996).

3.4 Game selection

The choice of playing a game was taken in accordance with the subject of this project, knowledge sharing. Games imply individuals interacting, exchanging information, and having fun. Moreover, games encourage networking. Playing together is a good way of getting to know each other and communicate.

typical!™ is a game developed by the company 'Future Navigator', where the researcher is an intern at and which she has chosen to use in order to provide for parts of the empirical data. The game is based on the Enneagram personality types, and it is meant to help individuals to understand others by putting them in different positions, where they have to act like a certain type of personality. Thereby, improving individuals' interpersonal and intrapersonal skills, by discovering different behavioral patterns of the way they act and interact (TYPICAL!™, 2012).

For this report, the game was assumed by the researcher, to be examined as a potential knowledge management tool or practice. By playing the game, the emotional muscle will be trained, raising awareness of different personality traits and behaviors, facilitating trust, communication and getting to know each other.

3.5 Research methods & Data collection

Collecting the empirical data for the research project implies using different types of data gathering methods. The researcher used both primary and secondary data for the study, in order to achieve a broader and more accurate picture of the process of knowledge sharing.

3.5.1 Primary data

Participant observation, including field experiment (e.g. game playing) was one of the research methods used for collecting the empirical data. This method gives the researcher fundamental understandings of what is going on within the studied context, and "allows [her] to speak with confidence about the meaning of data" (Russel, 1994, p. 141). By means of observation, information about the environment and individuals' behaviors, and characteristics, namely gender, age, culture is collected (Päivi & Kovalainen, 2008). In addition, the observer gathers data from specific events, e.g. playing the game, studying several issues, for example 'who offers to read the rules of the game', in order to recognize specific patterns of behavior.

Another primary data collection method used was the ***interview***, which allows the researcher to collect as accurate information as possible, and to get a better idea of the game and its applications. First, an ***asynchronous interview*** (see Appendix 1 - Interview) was used, using the e-mail as a communication platform (Päivi & Kovalainen, 2008). Even though the interview has a structured formulation, the questions leave space to open ended responses. This method was chosen because information about particular facts regarding the game was meant to be determined and also to avoid misunderstandings and misinterpretation of answers. According to Bryman & Bell (2003) the person interviewed will be more likely to give more considered replies, answering when convenient for her.

Second, an ***e-mail survey*** (see Appendix 2 – Questionnaire) was given to each member of the groups of participants to be filled in. The survey consists of an attached structured interview sent by e-mail (Bryman & Bell, 2003), also containing questions that can have open ended responses. As the groups used for interviewing are rather small and homogeneous, this specific approach was adopted conforming to Bryman & Bell (2003). Moreover, the authors argue that there is the tendency that respondents provide longer and more detailed replies to

open questions. As well, e-mail grants an easier and more immediate means of response. By using the questionnaires, the effect of the intervention (playing *typical!*™) is evaluated along with their opinions about the knowledge sharing process.

Profile of the participants/respondents

The asynchronous interview was held with Liselotte Lyngsø, managing partner at Future Navigator, and one of the persons who created the game and also offers consultancy related to it. Therefore, her insights related to the game constitute valuable empirical data.

The participants to the research were groups of colleagues, e.g. fellow interns at Future Navigator, and two groups of employees from two different Danish companies. Even though the companies have different sphere of activity, one activating in the consumers' reviews domain and one in the IT security solutions field, the members of the groups are specialized in the development of software.

The e-mail survey provides for demographical characteristics of the participants, such as gender, nationality, age, educational and work background. The number of participants was not equally divided between men and women, thus the number of male participants was higher than the female number. Moreover, participants of the study possess diverse nationalities, among them Danish, Italian, Romanian, Croatian and Greek. The age span of the participants is between 20 and 40 years old. They possess bachelors and masters degrees and have a specialization within Social sciences, IT & Telecommunication or Engineering. (see Appendix 3 – Tables groups demographics)

3.5.2 Secondary data

Scientific articles and journals, books and electronic sources were used as secondary data to complement the primary data in the process of data collection. A series of scientific articles and journals were collected from Copenhagen Business School's e-resources, namely EBSCOhost, JSTOR, Sage Journals Online, Emerald ManagementXtra and more, which provided for a search across a considerable amount of databases. Using secondary research shows that others had similar findings in a very different context, which strengthens the

confidence in relation to the validity and generalization of results of the findings (Eisenhardt, 1989).

Furthermore, visual materials, which include pictures, videos, drawings and paintings, are considered secondary data. For the present study, pictures and video recordings were used as a supportive material for presenting the game and how it was conducted (Päivi & Kovalainen, 2008)(see Appendix 5 - Photographs & Appendix 7 - Video). The game played by Group 2 was recorded, whereas photographs were taken for Group 3. Videos offer the possibility to study social interactions, capturing both the verbal and non-verbal messages that are being transmitted (McNiff, et al., 1996). They also offer spontaneity and liveliness of individuals' exchange of information and actions. Therefore, visual material data are considered as true and objective material (Päivi & Kovalainen, 2008).

To summarize the data collection methods Figure 3.1 was drawn.

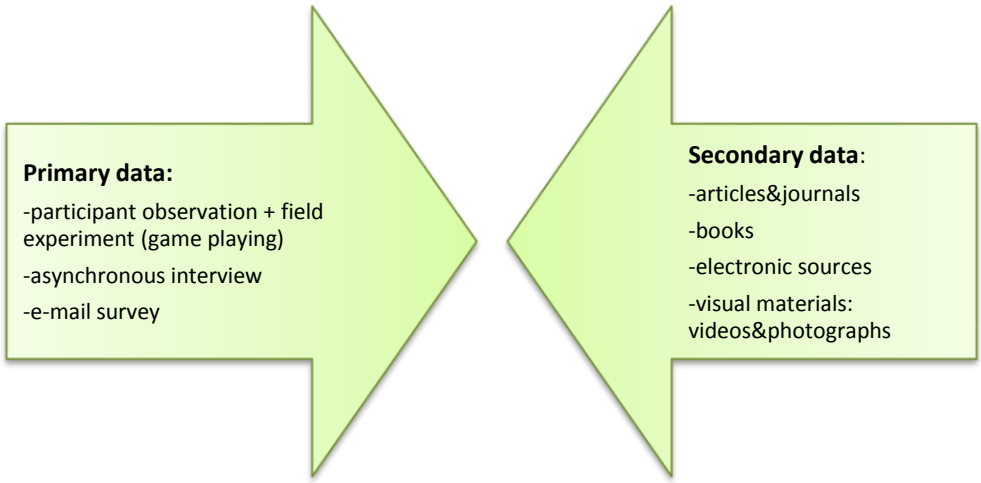

Figure 3.1 Data collection methods
(source: author's illustration)

3.6 Data analysis & interpretation

The empirical findings are presented first in the report, followed by their analysis. The content analysis and grounded theory methods are used so that the movement back and forth between the theory/concept part, data collection, analysis and interpretation will be facilitated (Bryman & Bell, 2003). Hence, observations, and answers from the interview and questionnaires are highlighted and simultaneously interpreted using the relevant theory. In the beginning the concepts and theories were presented as the framework, but as the study evolved, others emerged, allowing for constant comparison and combination, for a better understanding of the conclusions. Even though it is a qualitative research, the study is intended to be analytic and systematic (Bryman & Bell, 2003) providing an accurate picture of the process of knowledge sharing.

3.7 Quality standards

Validity and reliability are criteria in establishing and evaluating the quality of the research study. There has been a discussion regarding the relevance of these two standards for the qualitative research (Bryman & Bell, 2003). The social setting of the qualitative research is often hard to replicate, thus the reliability of the study is a challenging task for the research. Moreover, each organizational climate and culture, implicitly knowledge sharing practices, is different from one company to another. In addition, external validity is hard to achieve given the tendency of the qualitative research to employ case studies and small samples, making it difficult to generalize the findings across social settings (Bryman & Bell, 2003).

Nevertheless, internal validity, which means a good match between researcher's observations and the theoretical ideas she develops, is considered a strong point of the qualitative research (Bryman & Bell, 2003). This happens because the researcher participates in the process for a longer period of time, hence guaranteeing a high level of congruence between concepts and observations. Therefore, participant observation extends the internal validity of the study, helping to a better understanding of the meaning of her observations (Russel, 1994).

Alternative criteria for assessing the quality of a qualitative research were proposed, namely *trustworthiness* and *authenticity* (Bryman & Bell, 2003). Trustworthiness includes other four criteria: credibility, transferability, dependability and confirmability.

Credibility is normally attained through the *triangulation* method, which implies using more than one source of data (Bryman & Bell, 2003). This technique entails multiple theoretical perspectives, done in report by the literature review section, and data collection methods, consequently providing the findings a higher level of confidence. By providing a detailed description of the findings and analysis, the study will meet the transferability criterion, allowing other social milieus to benefit from the results of the research (Bryman & Bell, 2003).

Authenticity concerns with fairly presenting the different viewpoints among the members of the social setting. As well, the research must help to arrive at a better understanding of the social environment and to appreciate better the perspectives of other members of the social setting (Bryman & Bell, 2003). For that matter, three groups of individuals participated in the research.

3.8 Limitations

Bryman & Bell (2003) illustrate as well critique points of the qualitative research as following: the level of *subjectivism*, and the difficulty in the *replication* and *generalization* process. The qualitative research is argued to be too subjective, due to the researcher's views and interpretation of the data gathered. Nevertheless, using video recordings the research is prone to a certain level of objectivism. Besides, relying on its originality to structure the research is very difficult to replicate. The sample size, a small number of persons within the research, makes it complicated to generalize the findings and apply them to other settings. Instead, the authors state that the findings of the qualitative research are to generalize to theory rather than to populations (Bryman & Bell, 2003, p. 300).

4. FINDINGS & ANALYSIS

The following section of the report will focus on presenting the findings of this research, which emerged from playing the game and from the written interviews, along with an analysis and interpretation of the theoretical concepts and their application for the present study. A short presentation of the Future Navigator company and the typical!™ game will be included to offer additional information and to gain a broader picture of the topic of interest.

4.1 The Game

Future Navigator is a small company represented by three managing partners and interns, working with and exploring new future trends and megatrends. They engage in presentations, workshops and projects with the final scope of bringing people together, and developing better, meaningful new perspectives of the future. They also develop games and learning tools to keep up and respond to the rapidly changing perspectives regarding the learning experiences. Through games both higher interactivity and engagement of the players are achieved, getting them to know each other better.

The ***typical!™*** game is among the games they created, one that focuses on the diversity of individuals and their ability to be open minded and able to see things from the perspective of someone else, who is different than their own.

The game is based on the Enneagram system of nine personality types, which were previously discussed in the literature review chapter and it is meant to improve individuals' interpersonal and intrapersonal abilities, by putting them in different positions, acting like a certain type of personality. This way, like Lyngsø (2012) (personal communication) stated it is a good method to "train the interpersonal skills before embarking on an innovation project". As follows, individuals can better understand behaviors, foster trust among each other, easily communicate and transfer information.

typical!™ was played in several companies, e.g. Den Kongelige Ballet, Hillerød Hospital, Neurodan A/S, with different profiles and sizes, both to "improve working across traditional business boundaries" and to "understand that it is important to look at challenges from different perspectives". Since "problems cannot be solved at the same level as they were

created, […] *typical!*™ forces you to change your approach – works as an eye opener" (Lyngsø, 2012) (personal communication).

Although the game is based on personality types, no specific, prior psychological/sociological knowledge is needed; "it is for everybody from 12 years old to 99", the only requirement being "to go into this with an open mind – the point is NOT putting people in boxes but to get them out of them" (Lyngsø, 2012) (personal communication).

The game consists of a Type Board which describes the different nine personality types, Activity cards (A) which consist of several instructions to be followed by the players (e.g. questions, actions or sketches for role playing), and Type cards (T) with the personality types (see Appendix 5 - Photographs). The Activity and Type card have to be drawn all along the game by the players and act accordingly. The active player has two minutes to play its role while the other players try to guess the personality type that he/she is acting.

4.2 The Groups

As already mention in the methodology section of the present study, *typical!*™ was played by three groups. One included the researcher of the study and other fellow colleagues, interns at Future Navigator. The other two groups consisted of employees from two different Danish companies.

The rationales that supported the decision of playing the game between the interns (Group 1) were the following aspects: first, the interns are supposed to work for a limited period of time, thus they have less time to get to know each other; second, the opportunity to a better familiarization with the games the company is performing. This represents both a fun and constructive way of getting to know each other and expand their knowledge and understanding of the company's products and activities. The researcher has chosen to play the game in order to get a better understanding of how it works and how it can be further used as a knowledge management practice.

Consequently, two other groups (Group 2 and Group 3) were chosen to be observed while playing the game to see how they react and interact. Each group consisted of four colleagues, with only one group having a member from a different department in one of the companies.

Once more, the groups were chosen considering the following features: (a) interdependence, all have to work and contribute with something to the common goal and shared identity of the company; (b). the need for communication between them. Moreover, they interact with and influence each other, communicate and share information.

The participants of the study first played *typical!*™, by acting as different types of personality and then answered a questionnaire according to the type of personality they consider characterizes them best. Thus, they initially got familiar with the nine personality types, by interpreting and playing them, and then they defined the one that express best their behavior and perspectives of the reality and answered the questions related to knowledge sharing.

Each time the game was played by a group, it was considered as an individual experiment, which allowed the participants to be aware and make sense of the personality types, followed by a personal assessment of their perspective and behavior towards knowledge sharing.

The experiments provide the researcher with the empirical material in order to improve her learning and contribute to the findings of the research in terms of how additional practices, e.g. game playing, enhance the communication and trust among individuals and what their types of personality tell about their behavior and willingness to share knowledge.

4.3 Results of the game & questionnaires

4.3.1 Group 1

Group 1 comprises of three members: two women, among them the researcher and one man. Due to subjectivity reasons, the researcher did not answer the questionnaire. Therefore, only the other members' responses will be illustrated and interpreted. The types of personality found in Group 1 were the **Adventurer** and the **Expert**.

Future Navigator is working to a great extent with future trends, ideas and perspectives, encompassed within presentations, workshops and projects. They are trying to help their clients to figure out and create the future of their business as they desire. This requires openness and methodical curiosity. That is a good place for the Adventurer to work in, as this type is enthusiastic, with an 'out-of-the-box' way of thinking which helps in researching and

spotting trends for the future. As well, having different projects on the run, tailored on the specific need of each client, offers the opportunity for the Adventurer to be involved in many activities, as well as for the Expert to observe and investigate for novel ideas.

With regard to the interns' work, its duration is on a monthly basis and they have worked together between two and four months until the experiment took place. Thus playing the game could be seen as beneficial, fostering group-work, communication and understanding. Plus, getting insights on the *"'non professional' parts of […] colleagues"* can be regarded as discovering common points of interest, which is always a good way to build relationships on.

Even though they believe that it is not so relevant to know the person to talk to in advance, they agreed that it can assist in a better face-to-face communication and understanding. It is always easier to build a conversation on *"commonalities"*, such as *"both students / colleagues, from the same town, both like soccer etc"*.

Given the small size of the company, the interns are involved mostly in the research work. The tasks are dealt between all the interns and it is up to them to form teams and work together. However, after accomplishing one task, they are encouraged to present and share their work and results with the others. Thus, fostering feedback and relevant knowledge transfer. Moreover, common points of interest could arise, making them team up and collaborate. The research work is more a project based work, autonomous and flexible, offering the interns the possibility to choose the field of interest and the colleagues they want to work with.

Group 1 communicates mainly through online platforms, e.g. e-mails and facebook group, sharing thoughts, ideas, articles, and opinions. Face-to-face interaction happens not so often. When it does, though, they like to discuss and share their thoughts about their assignments, get feedback and second opinions on their work for further learning and improvement. It is important for both the Adventurer and the Expert type to listen to and explore diverse perspectives.

Matching the personality type with the way they see knowledge sharing as they answered in the questionnaire, it could be argued that Adventurers indeed value knowledge sharing for giving access to a wide array of ideas and perspectives, which in turn fosters creativity and

innovation. They are always optimistic, inspirational and extraverts, hence they see knowledge sharing as a pleasant and good activity.

Experts are looking for opportunities to expend their knowledge base, thus they consider knowledge sharing as offering multiple solutions and perspective to problems. In this way, they can add valuable know how to their specialist/expert status.

Referring to the relevancy of the knowledge shared, the Expert brought to the discussion the *"information overload"*, a definite aspect of today's society. This emphasizes one of the type's characteristics, as Experts do not want to waste any time on not useful stuff, thus they only share what they believe is of benefit for them and the recipient. Moreover, the Adventurer categorized knowledge in *"fun facts"*, shared over coffee breaks, and *"important information"* which is work related and shared during work time.

As far as the importance of trust when communicating and sharing knowledge is concerned, members of Group 1 consider that "*knowing each other's basic motivations and personality can help understand each other more and so to communicate and work more effectively together."* Thus far, the game enlightened upon different personality types' patterns of behaviors, work and non-work related. As participants answered, it helped to *"see different sides acted out between my colleagues",* while *"the types illuminate each of us differences and why we behave, react, communicate and work so differently".*

Over all, playing the game was a fun and challenging way to see colleagues how they interpret different roles and to see what did they think each personality type is about. Challenges are means of getting out of the 'comfort zone' and discover new ways of making sense of each experience. It was difficult for them to play the type they did not like and to combine different attributes in one attitude, especially when it did not suit them or the situation from the activity card.

Members of the first group have ages between 20 and 30 years old. Hence it could be indicated that age compatibility is high, being so closely in age. Likewise, being still involved in educational programs or just having finished them, it could be argued that they are more open to new means of sharing knowledge and ways of communication.

4.3.2 Group 2

Group 2 consists of four people, one woman and three men, all working in a company with an Information & Communication Technology profile. The types of personality found in the second group were: the **Realist** (2 participants), the **Expert** and the **Romantic**.

It could be argued that there is a link between the types of personality the members of the second group chosen for themselves and the industry/specialization they are working in. The ICT domain requires specialization into a specific subject - specific categories of software, application, configuration, development or support of IT products and services. Experts are very analytical and specialize in a specific subject, and the IT domain is continuously changing, giving them the possibility to expand their knowledge. Likewise, it could be reasoned that Realists, hard-working and investigative are always systematically on guard with regard to the revolutionary IT sphere.

Experts prefer mostly to work alone, away from noise and crowds, thus they score less on extraversion. Similarly, the IT professionals are supposed to score lower on the mentioned trait (Ash, et al., 2006). Nonetheless, they are curios and innovative, searching for novel ways and ideas of solving problems and specialize even more. It could be considered, thus, that they possess a high level of openness.

The Romantic type connects with the ICT field on a creativity and uniqueness level, as software applications and programs imply these features. In addition, an attribute of Romantics that applies very well to this domain is passion - passion for their work, to do and undo things so they achieve results in the end.

Members of Group 2 have been working together for at least nine months. That means that they already knew each other; *"after 9 months I got to know them pretty well"*, as stated by one of the participants, especially given the fact that with one exception they are working in the same department. Thus, the game was more about having fun for them, being together again and maybe not focusing so much on gaining information about the others' personality types.

Davenport & Prusak's (2000) saying "Hire smart people and let them talk to one another" is not such an easy practice according to the answers from the questionnaires. Participants of the second group agreed that it is rather important to know the person before they start a

dialogue with him/her. Among the reasons they identified are: (1) avoiding the situation where the exchange of knowledge is not of interest for one of the parties; (2) it facilitates a more friendly approach; or (3) it assists the person in shaping a conversation with others.

The knowledge conversions mostly take place through face-to-face conversations, like one of the participants emphasized: *"I usually go to their desk and talk directly to them"*, and sometimes through e-mails or intranet (chat or instant messages).

Their motives to talk to each other are diverse, from *"take a break from work", "out of interest", "work related stuff", "team building", "relationships building"* and of course, for getting access to *"opportunities"* and *"information"* to complete their tasks. Nevertheless, they like to share knowledge that they think will be relevant for the others, and when they are asked for it. Theories argue that there is the tendency that people will feel more confident when they believe they share a piece of knowledge that is useful to the others. *"If I feel that something may be useful for a colleague (maybe he/she is working on something that i know) I will go and ask if he/she needs help or informations"* one of the participants answered. As he is the Romantic personality type, he is sensitive to others feelings. On the other hand, a Realist answered, "*I usually share whatever I find interesting, others can choose if they are really interested or not."* Pragmatism is an attribute of the Realist type. Hence, with a practical mind-set they will argue that the others will filter the information accordingly to their needs.

In consequence, it could be indicated that acting in this manner the role of Experts will be further enhanced, by sharing only relevant and correct knowledge. As for the Realists, acting like guardians, they filter and discern every piece of knowledge that is interesting for them and further transmitted, but they will expect in return the others to decide and filter the information for their own good.

At Question 9 from the questionnaire the participants are asked to mark statements about how they perceive knowledge sharing from the most relevant to the most irrelevant for them. Their answers illustrate the fact that one person can represent more than one type of personality.

For example, the two Realists from this group perceive knowledge sharing very different. For one of them, knowledge sharing gives power and control, and reputation, which is the least

relevant for the other. Nevertheless, they both consider knowledge sharing as facilitating improvement and offering solutions to problems. Subsequently, a Realist can encompass attributes from Perfectionists, Leaders or Winners, but also from Adventurers, or Romantics.

As for an Expert, knowledge sharing is considered wise, facilitating improvement and innovation. Romantics also consider knowledge sharing as facilitating improvement and innovation, fostering creativity by bringing people together.

With regard to trust and communication within relationships, they all agreed that it is important to get to know the persons *"better and better"* in order to trust them. Even though they have answered that trust facilitate communication between them and further on the ease of sharing their knowledge, they did not relate the level of trust in their colleagues with playing the game. Besides, they argued that the game was too short, and that they did not have sufficient time to both think of how to perform different roles and to associate certain personality types and behavior with different co-workers.

Challenges are part of making a game being entertaining and complex. Thus, they found it difficult to *"impersonate conflicting behaviors"* as they had to combine both good and bad parts of each type of a personality when playing the role. Moreover, given the short time of role-playing they found it difficult to *"switch mindset between personalities and trying to figure out what to say to stick with the given description"*. It was especially challenging as it involves *"strict characterizations"* of personalities and *"actions that are not easy to represent giving a clear hint of what your personality is".*

Yet again, knowledge is embedded in individuals' minds, and is only in their willingness to share, accept and use external knowledge. For this reason it is so important for individuals to be able to be open to other view points and perspectives.

Age compatibility is another factor that influences employees' knowledge sharing behavior. The age interval of the second group is between 20 and 40 years old. In could then be argued, that the more they are close in age the more they will engage in knowledge sharing process and practices, such as playing games, socializing and interacting. Besides, their educational level, most of them having a master degree, acts like an element that gives them confidence, being used to easily access and interpret new knowledge.

4.3.3 Group 3

The four members of Group 3 are three men and one woman. They have an IT, respectively an engineering specialization and background, working with software development. The **Expert**, the **Helper**, the **Romantic** and the **Perfectionist** were the personality types revealed in this group.

As mentioned before, the ICT domain highly values specialization and an analytical and logical mindset. They need to rapidly adapt to changes, thus self-learning skills are a strong attribute for them. They constantly learn and improve their skills as they work with the development of software, a very complex and challenging task. This specific field of work is a proper domain for the Perfectionists, as they have a constant desire of improvement, as well as for Experts, giving them the possibility to specialize themselves in a specific area. Romantics seek authenticity and uniqueness, thus they *"want to be a part of a skilled team and this way [enhancing] people in wanting to learn more things"* as this answer shows.

All the participants in Group 3 work in the same department, specifically the Development department. Only one of them worked for over a year in the company, whereas the rest of them have been working there for less than three months. Therefore, it can be argued that they had less time of working together and knowing each other.

They work in teams on *"a daily basis"*. Moreover, their work is organized around *"3 weeks projects at a time"*, where they plan and organize their work themselves. Hence, a good communication and collaboration within the teams is needed to solve the tasks. The game could contribute to this, as one of the participants remarked: *"I think this game is good at making people open up and get more intimate with each other, which is a good thing for people working closely together on complex problems"*.

Knowing something in advance about the person to talk to facilitates the conversation act, agreed members of the third group. They say that *"communication gets more relaxed"* and *"more personal"* (the Perfectionist likes details) being *"easier to introduce jokes and chit chat"* (the Helper), and as a result, they are *"more open and friendly"* (the Romantic), and furthermore they *"feel more confident and less nervous"* (the Expert). Especially for the Expert, as he is not the very communicative kind of person.

These arguments are also supported by the fact that verbal, face-to-face communication has top priority when interacting with each other. As they mentioned, all developers work in the same open space, enhancing face-to-face dialogue and talks. However, the knowledge exchange also happens through e-mail, chats and meetings.

The need for some piece of information is among the first reasons to talk to each other, members of the group argued. One of the participants (as a Helper) mentioned that he also likes to *"discuss about and plan work"* with his colleagues, as it is in the Helper's nature to care about and be friendly with the others. Whilst the Experts they interact with colleagues if they *"would like to do something together"*, as they do not want to waste their energy on things that do not interest them. On the opposite side, the Romantics value emotional feelings and meaning in their work and relations with others. Thus, the work related discussions and questions come after the social talks. It is also the case of the Perfectionist.

Furthermore, related to the relevancy of the knowledge participants would share with their colleagues, the answers showed that it is fairly important to share something that is *"needed"*, accurate and *"viable".* As for a Helper, he likes *"to provide people with the information they need, when they need it. For that reason I try to check in on everybody once a while. I do like to talk about the latest android phone and stuff like that when people have time for that."* Whereas the Expert, prefers to analyze it in advance and to be sure about the piece of information shared, augmenting his expertise and specialist status: *"If I am unsure whether a piece of information if extremely useful or has visible flaws, I reconsider sharing it with others. Only when I know it is close to perfect or I can make a strong case defending my idea, do I share it with my teammates."* The Romantic associated the relevance of the knowledge shared with the time she has been working in the company. Whilst, initially it is important to share useful and work-related knowledge to avoid vulnerabilities and maybe incorrect judgments, after more time in the company it would be easier to share other than work-related knowledge.

According to the answers in question 9 (which statement about knowledge sharing suits them best) the Helper pointed out that first of all he sees knowledge sharing as wise, which is more suitable for the Expert type. However, it could contribute to their self-esteem, sustaining their need of being appreciated for their efforts of helping the others. Being much alike to the Peace Seeker type of personality, knowledge sharing is also seen as bringing people together.

This statement was appreciated at a high level of the Expert too, showing once more that a person combines the prominent type of personality with others. The opportunity for improvement, creativity, and the access to multiple solutions to problems represents valuable features of the knowledge sharing process for Romantics. As for the Perfectionist, he sees knowledge sharing as wise and facilitating improvement, which defines his type characteristics.

Trust is definitely a significant variable when it comes to knowledge sharing, and plays a notable role for relationships. Since trusting each other facilitates confidence that no one will make inappropriate judgments and remarks on behalf of the others. The game, seen as a *"shared experience"* is thus a beneficial way for individuals to trust one another – *"It is also easier to share knowledge to people one knows already and had shared experiences together" […] "knowing my colleagues better makes me more confident when sharing my "more crazy" ideas with them, because I am sure I won't get judged in a way it would make me uncomfortable".* Getting to know each other facilitates better communication, thus the colleagues start to have *"similar knowledge fields"* contributing to the ease of sharing their knowledge between each other.

Likewise the other groups, members of the third group were challenged by acting differently than their own personality type. According to a member of Group 3, there are some personality types that possess well defined features, like the Leader, or the Peace Seeker, which were easier to be played. While others, like the Perfectionist, the Winner or the Realist have a lot more common attributes, which makes them more difficult to act. Nevertheless, being challenged means being stimulated to exercise and improve abilities, like learning how to make scenarios when acting a really different, thus difficult type of personality. Hence, *"conflicting decisions and a lot of concentration"* was required, one of the participants acknowledged.

Age compatibility is a strong element for the third group as well. Their age group is between 20 and 30 years old, with bachelors and masters degrees, with the mindset of *"knowledge sharing makes them better, more inventive and creative".*

4.4 Summary of the three groups

4.4.1 The overall experience of the game

First, as a player, the researcher has gained extensive and constructive knowledge about the practical things related to the games, e.g. rules of the game, its objectives, applications and the challenges of role-playing.

Second, as an observer, the researcher can name some good parts of the whole interaction as well as some critique. Among the good aspects are to be named: (1). the participants were having fun while playing it; (2). they were helping each other out when something was unclear, e.g. some words that they did not know in English, or some actions they were not sure about; (3). they seemed rather curious and excited about the action that was about to come next, while they looked troubled when in need for acting accordingly; and (4). they were asking questions and improvising sketches related to their work, which could be considered as a good step towards knowing their behaviors and feelings within the work environment.

On the critique side it could be pointed out: (1). the duration of one game is maybe too short to go through most of the activities and act all nine personality types; (2). the need of another person to keep up the guessing interval for the players (the active player has two minutes to play the role so the others can guess); (3). four people is a good number of players, but it would be even better if the number of players would be higher, thus a higher level of interactivity.

The above mentioned arguments are supported by the feedback given by the participants in the questionnaire. All agreed that the game was fun to play, and could be used in team-building activities for sure, *"to break the ice between colleagues"*, and to *"get to know each other in different ways than you do in a work context".* Still it was too short and they did not relate it to their relationships with their colleagues. However, they saw it as *"a shared experience that [they] can talk about"* and it also raised awareness about the possible personality types and their basic attributes, as one of the participants stated *"It made me think about bad parts of types of personality".* Another participant stated that he could spot some

attributes of his colleagues' personality types, as they seemed more natural when playing them.

The game also provides for a mutual understanding of how different types of personalities are acting in and reacting to certain situations. For example, *"what I think a 'leader' is doing, or what I act like when I want to be a peacekeeper."*

4.4.2 Elements of the knowledge sharing process

Three elements are part of the knowledge sharing process, namely the kind of knowledge that is being shared, the way of sharing, whether it is face-to-face, through intranet, emails, conferences, or meetings, and the level of sharing – individual, teams and organizations. Based on this classification the results will be discussed and summarized further on.

Participants of the study exchange mainly work related knowledge between them, tacit as well as explicit knowledge. They regularly engage in conversation and relate to one another when they need solutions to some problems they come across, knowledge to complete their tasks and learn something specific from someone else. Nevertheless, their daily interactions while *"eating together or playing foosball"*, or just talking out loud in the office, as participants pointed out, make them come closer together, and create the shared space and language, building the ground for knowledge sharing.

The most often mentioned ways of communication to a colleague are face-to-face dialogues, nurtured by the open space the participants are working in. In addition, they work in teams very often (at least members of the second and third group), which also contributes to a higher interactivity and communication, having to plan, organize and share their thoughts about their work and projects. Frequent face-to-face interactions not only provide for better relationships between colleagues, but also represent a rich medium for knowledge sharing. Knowing each other better fosters trust and shared experiences, which influence the efficacy of understanding of feelings and behaviors when it comes to the willingness to share knowledge.

Except face-to-face conversations, they communicate through e-mails, chats and by having organized meetings. First, e-mails, chats and intranet represent the individuals' level of

sharing knowledge, as they transmit and direct their knowledge to the person in need of it. Second, within teams, they usually share knowledge by face-to-face dialogue as argued above and through meetings. Lastly, at the organizational level, meetings are the most used means of communication and sharing, given the possibility for improvement and common understandings.

4.4.3 Perspective on knowledge sharing

They consider knowledge sharing as an easy, natural activity, and not participating in the process of sharing and receiving is contrary to the social nature of individuals. Sometimes could be hard to express it in words, like one of the participants stated, for the reason that is a so common activity to be involved in the knowledge sharing process. Individuals' socialization and interaction at work makes them knowledgeable about the resources they can find in their colleagues.

Few examples are given below:

- *"Knowledge sharing is usually natural in my line of work. We rely on each other to keep us up date with information"* (group 2)
- *"This happens all the time in a very informal manner"* (group 3)
- *"Knowledge sharing makes us better, more inventive and creative"* (group 3)
- *"By sharing a problem somebody might come up with an unexpected solution, by sharing a solution you might solve somebody's problem"* (group 2)
- *"It's not just a single person job"* (group 2)
- *"That's why we have language – to share thoughts and knowledge"* (group 1)

Still, there are some aspects that need to be taken into account when sharing knowledge, like having *"shared the same experiences and knowledge vocabulary".* In addition, they argued that sharing knowledge could give to a person only short-time, *"minor results"*, or that more formal and *"organized meetings"* are needed to share information.

Perceptions about knowledge sharing are by all means related to the work domain and the kind of knowledge that is being shared. If the work is not so complex and, as one of the participants of the first group argues, "*the knowledge we share does not have only one correct*

answer, but is more an interchange of perspectives and things we find interesting and relevant in regard to our work", the sharing process is easier. Whereas if the knowledge shared is more complex, it is much more time-consuming - analyzing, framing and transmitting it.

Like it is in the case of software development, the researcher could debate on. Moreover, one of the representatives of the domain stated that they engage in different communication ways to have access to new things, to learn and improve: "*We also have pair programming, lots of meetings, we send emails each other about technological things which are part of a natural activity. […] I think it has to be like that in our field. Otherwise you are only working for yourself."*

4.4.4 Working together

The time they worked in the company proved to be of significant importance, as it reflected on one hand the ease to guess the types that were interpreted, and on the other hand the duration of the game along with its content. By content it is meant the way the dialogue between them developed. Based on the researcher's observations the following aspects could be argued:

Members of Group 2 worked together for almost a year, giving them the possibility to know each other at work and possibly outside the work environment. Therefore, it was easier for them to guess the types of personality played, and hence the game lasted less.

Members of Group 1 & 3 are rather new colleagues; they had only few months to work together, thus the game lasted longer due to the difficulties they encountered to guess the types they were interpreting.

4.4.5 Demographics

The nationalities encountered among the members of the groups are very diverse, such as Croatian, Danish, Italian, Romanian, and Greek. Two aspects can be related to this demographical factor, specifically the cultural and the language dimensions.

Individualism-collectivism is the cultural dimension that will be scrutinized. As mentioned in the literature review part, there are studies that show that people in collectivistic cultures are characterized by solidarity, interdependence, connected to others, as opposed to those from an individualistic cultures, that are more independent. All the countries participants are from are known to have a collectivistic culture, thus individuals from these countries are more used to collaborative work, supporting and contributing equally to the team. Implicitly, they are supposed to share knowledge more easily.

The language barrier is the other aspect worth taking into consideration. The game was played in English – which is not the native language for any of the players, thus misinterpretation and misunderstandings might have occurred. It could be argued that the 'syntactic boundary' from the game level can be transferred to a higher level, namely the work activities. The syntactic boundary stands for a knowledge boundary created by differences across the group in terms of grammar, symbols and language that are used (Newell, et al., 2009). Knowledge sharing may be hindered by the language differences, not being able to communicate and receive the knowledge correctly.

Age, gender and the educational level of the participants to the study are argued to influence to some extent their willingness to share knowledge. The groups were rather homogeneous in terms of the age group, which is between 20 and 30 years old. Most of the participants possess either a bachelor degree or a master degree. Interpreting these elements all together, it could be concluded that they are just started to build on their expertise, developing and improving their skills and abilities. They are now much more open to every new idea, exploring, experimenting and learning with every task within their work. Therefore, their enthusiasm for and willingness to acquire know how could foster knowledge sharing.

In terms of gender, a relationship could be spotted and interpreted between the gender of the participants and their reasons to engage into dialogue with other persons. Whilst men's organizational behavior attributes are individualism, competitiveness and self-promotion, women's are kindness and altruism. Taking into consideration the questionnaire, men answered that they talk to their colleagues if they believe that their colleagues could help them, or in other words *"to have access to opportunities"*, *"out of interest"*, or for *"work related stuff"* and only after for the socialization sake. Women most often start by showing support and consideration towards their colleagues, *"asking about how he/she is doing",* and

after that engaging in sharing knowledge. Nonetheless, the number of women was exceeded by the number of men in the study, only three women participating in the research in comparison to seven men. Thus, it could not be drawn a strong conclusion, as different women with different personality types, such as the Expert or the Realist, showed closer answers to those of men's.

Table 4, summarizing the data from the questionnaires and implications is presented in appendix 4.

5. DISCUSSION

Several points of discussion derived from the empirical findings will be brought up in this part of the report, both from an observational point of view and from an interpretative approach. Moreover, new concepts that emerged from the research will be scrutinized. Finally, the limitations of the research are addressed.

Engagement and curiosity

At the end of the game the researcher observed and heard that all the participants wanted to play the game one more time. Just after the first round they became more and more engaged in playing the role at their best and meaningfully. Like Lyngsø (2012) (personal communication) says: "new insights emerge every time – it's a game that grows on you."

Furthermore, the game can be adjusted to serve different needs and directions for discussion, "the activity cards can be specifically tailored to focus on specific situations/challenges" (Lyngsø, 2012). For example, the activity cards could include more specific questions and actions focused on the knowledge sharing aspect, e.g. how would a favorable knowledge sharing environment look like?; what motivates you to share knowledge?. Or even sketches where they would have to act as if they have lost valuable knowledge by sharing it with colleagues for example. Thus, on one hand participants would envisage knowledge management and knowledge sharing issues. On the other hand, the information revealed by participants exposing their beliefs and perspectives on the specific issues could take the form of a descriptive map of points of view according to each personality type.

Employment duration

Another point of discussion is whether the game is more useful to get together the newer employees and let them know each other. There are signs for it in Group 3, as they wanted to collaborate and share their thoughts about the types while taking the guess. Plus, they formulated their questions and improvised sketches around their work. In that case, it could be argued that they wanted to know more about their behaviors, feelings and emotions.

Suggestions for the improvement of the game

Although they did gain insights of the personality types that exist and their characteristics, raising questions about certain behaviors and attribute of their colleagues, they did not consider the game useful for defining and categorizing their colleagues. Interpreting this, the researcher could argue that a suggestion for improvement could be to play the game two times. One time the normal game and one time acting according to one's personality type, notwithstanding the one written on the type cards. So the other players have to guess his/her type. This way, participants could make connections between the acting and the real behavior they have in certain situations, work and non-work related. This kind of suggestion was made by some of the participants as well. To name one opinion: "*you would then need to talk more about the types you are (resemble you the most) and why before playing the game, so that you would get a better understanding of each other, and then when playing the game, you would be more likely to relate the types to your colleagues."*

Furthermore, the number of players could also influence the insights the participants perceive. The groups consisted of three or four members, a relatively small number. If there were more than four people the game might have taken longer, giving the participants the opportunity to interact more with each other and to reflect more.

Knowledge sharing barriers

All agreed that it was very challenging to switch between personalities, act accordingly and following specific attributes. This calls for a high adaptability to changing situations, creativity, imagination and openness. The functional fixedness barrier that might be encountered when sharing knowledge implies that sometimes people have the tendency to be quite fixed in their perception of how things could be used or how problems can be solved. Besides, they tend to choose the familiar and comfortable way of solving things. By not exploring all the perspectives and aspects of a problem, most of the times this approach is less creative. Therefore, individuals, e.g. employees, need an impulse and to be encouraged to break from the regular routine and explore more the unfamiliar and uncomfortable situations in order to accept and understand new ideas and problem-framing approaches. Thus, the game came as a tool that challenges them to engage in and experiment new activities. "It is

preparing the ground for knowledge sharing building a bridge between people so that it becomes easier to communicate afterwards." (Lyngsø, 2012) (personal communication)

An additional aspect that might hinder the process of sharing knowledge could be encompassed by individual sense of self-efficacy. Since most of the participants stated that the most relevant the knowledge they are about to share is, the higher their willingness will be to share. Therefore, this along with the language barrier makes it even more difficult to take the risk and share what they know. However, if employees know each other to a greater extent, they will trust that if one shares a less relevant piece of knowledge the others will not judge, or seen it as a mistake.

5.1 New concepts development

Knowledge-intensive firms and knowledge work and workers

As the research evolved, new concepts needed to be acknowledged. It is the case of the knowledge-intensive firms and knowledge work and workers. The reason for that is the groups' membership to organizations that are defined as *'knowledge-intensive firms'* and their *'knowledge workers'* members. Alvesson (2004, pg. 17) classifies the knowledge-intensive firms as "organizations that offer to the market the use of knowledge or knowledge-based products". Their central activities are based mostly on intellectual skills and symbolic work, based on ideas and concepts. This kind of work is categorized as *'knowledge work'* that implies the contemporary category of work, e.g. software development, consultancy, advertising, public relations (Newell, et al., 2009). In addition it is based on problem solving, creativity, and the use of analytical and social skills (pg 25). The employees thus, are supposed to have an academic education and relevant experience (Alvesson, 2004). Besides, this means that their work demands a lot of autonomy, the employees being the ones in charge of planning, organizing and initiating their tasks.

This is the case of the participants of the study, being employed and working for knowledge-intensive firms, e.g. software development, consultancy. As knowledge workers they are highly skilled, possessing a high level of specialization and contributing with a wide variety

of ideas and beliefs. This is sustained by data gathered from the questionnaires, namely their level of education, most of them having a master's degree and their domain of activity, e.g. IT/Telecommunications and Social Sciences.

Knowledge workers often work in teams, as it is confirmed by the participants. Accordingly, these kinds of organizations are flatter, working in a more flexible, less bureaucratic way. It is argued that these are characteristics of software development companies, the industry where the participants to the research are working in. The tasks and problems the employees are confronted are more or less unique, complex and creative, hence, implying the need for extensive communication between them. Extensive communication stands for the ease of communicating valuable knowledge and the ability of considering multiple opinions to the final scope of solving the tasks efficiently. Thus, the game was intended to facilitate the communication between the players, getting them to know each other better and break out the barriers that might exists between them, as colleagues from the same department or from different ones.

Another attribute of the knowledge workers is their high skills which in turn lead to specialization and a wide variety of ideas, beliefs and opinions that they possess. On one hand, their specialization might lead to the functional fixedness barrier when it comes to solving problems. On the other hand, differences in terms of the knowledge possessed of each individual tend to generate conflict of ideas and opinions. However, this conflict is not necessarily bad, but might add a positive approach to the problem-solving process. This can happen if the individuals involved can have a meaningful and synergistic dialogue with the others. It is not only about the social skills that an individual need to get along with others, but also to be aware of its emotional intelligence and cognitive skills. Thus, allowing individuals to acknowledge and understand the knowledge of others, along with their ideas and perspectives, building on shared experiences and knowledge field.

This is the idea behind *typical!*™, which could be seen as a practice or facilitator of conversations and social interactions, mechanisms that support knowledge sharing the most, but sometimes need an impulse to happen freely.

Creative abrasion

An interesting concept related to knowledge management practices arose from the empirical data. That is *"creative abrasion"* (Leonard-Barton, 1998, p. 63) or getting people with different way of thinking and work styles to collaborate. The main focus is on diversity, but not on diversity on the basis of gender or ethnic background. It involves more attention to people's emotional intelligence and cognitive approaches to problem solving. The scope is the integration of different problem framing and problem solving approaches in order to create something that no single perspective could have (Leonard-Barton, 1998). It is a question of being open about the fact that every individual is quite different, and by acknowledging openly those differences, contributes to a better knowing and understanding of others' behaviors and emotions, in order to share knowledge more efficiently and communicate better.

The researcher argues that the first step in understanding creative abrasion is by assessing the personality types and encouraging individuals to recognize them and their attributes in their own behavior as well as in their colleagues'.

In addition, the game was researched for a tool for raising awareness of emotions and behaviors. Knowledge is created through conversion between tacit and explicit knowledge. As Nonaka & Takeuchi (1995) argue, all knowledge conversions involve processes depending on interaction and dialogue, but most importantly it involves developing a shared mental space and making sense of it (shared experiences, emotions and ideas).

Knowledge sharing is fostered by colleagues knowing each other at a considerable level, better communication and a high level of trust. Since the knowledge management concept is not very easy to delimit and offers diverse meanings, it could be argued that the interactive approach should be a core element of focus for knowledge management practices. Social interaction grants interpersonal communication and learning. Games are based on high interaction and interactivity, bringing people together. Thus, games could be seen as part of the KM practices, building the ground for knowledge sharing.

5.2 Limitations

A significant limitation could arise though from relating the personality types to specific persons. There is the possibility that fellow employees will prejudge reactions and apply unjustified stereotypes based on the personality type. Moreover, such identifications could take the form of discrimination against people.

Further on, the analysis was not oriented toward specific company profiles or sizes. The selection of the two groups (Group 2 & 3) with a profile within the ICT (software development) field was unintentional. The members of the groups participated voluntarily to the research. Plus they are part of different companies. One that activates in the IT security area, hence rather closed to the exterior and with more formal ways of communication, as members of the group mentioned. The other is a consumers' review platform, thus more open and with an informal structure. Therefore a generalization based on the industry would not be so accurate. In addition, only one group of colleagues is not representative for the whole company, especially that there are more departments within a company.

As for the other group (Group 1), the interns from Future Navigator, the activity domain is totally different and the game was intended to enlighten the researcher providing a base for further learning. Besides, the company is very small. Add to this the features of the researched subject, which are very diverse form one company to another, thus a generalization of the results would not be possible.

Moreover, the game is in a beta version. For this reason, an informal approach of the study has been chosen, rather than a more formal method (meaning involving managerial actors in the study). Thus the research is not about finding solutions and answers to different company problems, but oriented towards experimentation and learning. Explicitly, what individual characteristics of employees and knowledge management practices could enhance knowledge sharing?

Additionally, the research focus was limited to the intrinsic motivational factors that influence knowledge sharing, thus not considering the effect created by the employees' extrinsic motivations or the bundle of them.

Given the small number of participants, gender comparison is not that relevant. As for the age comparison, on how younger versus older employees perceive knowledge sharing, this is not possible, as all participants have similar ages.

The time and writing space constraints did not make it feasible for the present study to research different approaches which will be discussed as further direction for research in the next section.

All in all, the complexity of knowledge as a concept, and implicitly of knowledge sharing, along with the fact that it can entail multiple meanings became evident during the entire study: starting with the choice of the appropriate literature, throughout analyzing and interpreting the game and questionnaires.

6. CONCLUSION

Using action research as a research method for the present study has been very challenging, as different roles had to be played: as a researcher, observer, participant and interpreter.

The study started with the aim to find out more about *individuals' characteristics and behaviors towards knowledge sharing and what drives them to engage in this process*. However, as the research evolved, selecting the action research method, the study became more inclined to a learning and development process. The direction to which the study advanced was toward the research of better and efficient means of getting individuals together and interacting more, thus influencing their behaviors towards the communication and knowledge sharing. *~How they could get to know each other better (on an organizational level)? ~ How the communication between individuals could be improved? ~ Do their behaviors and motives to share knowledge change after interacting more? ~ Do all these aspects influence the knowledge sharing process?* These are some of the questions that emerged from the research process.

Trying out this approach for the first time (playing the game, observing others playing, using video recordings as data materials), the outcomes were not expected to be precise solutions to problems, but valuable learning and knowledge. Consequently, it is not a question of not achieving results so much as it is about opening up for discussion and giving rise to creative practices.

No clear and direct relation has been established between playing the game and the level of trust or the easiness to share knowledge between the participants. As the researcher also experienced and observed, the game opens up for further thinking and acknowledgments about different personality types and their characteristics, reactions and behaviors, but it is not an immediate fact to read and analyze the other players'/colleagues' behaviors. A precise answer whether or not the game is an efficient practice to encourage knowledge sharing and to be used in an organization could not be given.

Nevertheless, the studies show that a major factor in the success of sharing knowledge is a shared language of the individuals involved. Shared language also stands for common

experiences, overlapping expertise domain, shared beliefs and values. All these are building a common ground for a better communication that further on facilitates knowledge sharing. For this, the game answered the question: *"How does communication and employees getting to know each other better influence the share of knowledge?"*. Since the game contributes to a shared experience of the participants, offering non-work related insights about their colleagues, and a mutual understanding of how different types of personalities react to and act in certain situations.

The empirical data provided by the questionnaires illustrated how certain individual characteristics influence the way knowledge sharing is perceived and approached. All participants agreed that knowledge sharing represents a natural activity that involves more than one person. It offers solutions to problems, new ideas and perspectives and facilitates creativity and innovation, satisfying their need for learning and improvement. Focusing on that and personality traits like openness, altruism, authenticity, extraversion, conscientiousness revealed by their Enneagram personality types, assumptions about the ways individuals interact, communicate and work can be made. Only six out of the nine types of personality were disclosed among the participants in the research by which their attitudes and intentions to share knowledge were analyzed.

Perfectionists value a work environment with trust and strong communication. Their need for details, being oriented toward self-criticism and self-improvement might hinder the share of knowledge if they do not have strong relationships with their colleagues, to understand and not judge them.

Helpers value work which involves collaboration and a friendly environment. They like to check in on their colleagues from time to time, mostly communicating face-to-face. Their agreeableness and altruism positively influence their behavior to share knowledge.

Romantics value work which uses their talents, and being part of a skilled team gives them the opportunity for further learning and renewing their capabilities. They also put a high price on feelings hence establishing relations between colleagues is a first step towards trust and better communication. Being achievement-oriented, engaging in activities that challenge them, they are expected to be more willing to take part in knowledge sharing.

Experts value work and communication which gives them the opportunity to collect more knowledge and perspectives, analyze it and form an accurate opinion, in order to build on their role of experts. They do not want to waste time on things that are less important to them, so they engage in knowledge sharing activities only when they have extremely useful, relevant and accurate knowledge to transmit or they need to learn something. Therefore, it is important for Experts to know their colleagues' motivations and behaviors in advance so the communication and collaboration could be more effective.

Realists value work where they can be investigative and practical; where the exchange of knowledge is based on sharing what so ever problems they encountered and solutions to problems. This way they can examine and evaluate what is important for them and what they need to improve on their own skills.

Adventurers value work where they can find a wide array of ideas, perspectives and openings. They are open to discussions and price second opinions. Their openness towards experimentation and novel insights could be a strong predictor for knowledge sharing.

These particular characteristics could prove to be of valuable help both for practitioners and fellow employees, as they provide hints on how people collaborate and how important is for them to know the persons with whom they communicate and share knowledge. To a certain extent, all participants agreed that it is important to know more about the persons they engage in conversations and share knowledge with. The rationale behind their answers is that the communication becomes more open, relaxed and personal; hence it increases confidence and trust.

Therefore, getting them to know each other better tends to be a key aspect of good communication, trustworthy relations and knowledge sharing between colleagues. To answer a part of the research question, *"What kinds of behaviors and practices enhance the knowledge sharing process?"* this is a kind of behavior that has a great influence on knowledge sharing. It could be argued that one practice to do this is by increasing the occasions they are together, e.g. team work, games.

Possibly some colleagues build relationships outside the work environment thus they also get along and communicate well at work. However, sometimes is hard to make the first connection. It would be easier to get them together in a shared experience like a game, to

prepare the grounds for something meaningful – which could be better communication, or build on trust which in turn helps them to collaborate more effective and to take the risk of sharing knowledge without being judged, afraid of making mistakes, or losing valuable knowledge.

Concluding to the intrinsic motivations to share knowledge *(What motivates employees to engage in knowledge sharing?),* participants engage in conversations and knowledge exchanges mostly out of their own interest – they believe that knowledge sharing helps them to be more creative and inventive, and to learn. In addition, the ability to provide valuable and useful knowledge to their colleagues enhances their sense of self-efficacy and motivates them even more to share. They also enjoy helping others to solve different problems.

The participants' demographical elements, in terms of age compatibility (20-30 years old) and educational level (bachelor and master) are confirmed as predictors for sharing knowledge, possessing a mindset focused on learning and improving their skills and abilities. The gender could not inform about a clear difference between men and women as the number of men was higher than that of the women and their answers were similar.

As a final point to be mentioned, the novel aspect of the research has been to bring together key theoretical perspectives, like relational models theory, social exchange theory with the Enneagram personality system, illustrated by a game. Additionally, the game was researched as a creative knowledge management practice. Since the game is not only focused on the social interaction and interactivity between individuals, but also on bringing into attention a fun and easy way of knowing personality traits. Through challenges like role-playing different personalities individuals become aware of the differences and similarities between them and understand why they behave, react, communicate and work so differently. This could be a beneficial step toward acknowledging and accepting each others' motivations and preferred ways of communication which could influence their willingness to share knowledge.

7. CONTRIBUTION AND FUTURE RESEARCH

The emotional intelligence field and Enneagram model used in organizations is a relatively new and growing field of research. Hence, the literature, researches and studies are scarce. Especially those concerned with the knowledge sharing aspect and how it influences the process. It could be argued that the findings of the present study could be valuable both for the academic research and for managers and employees.

The Enneagram personality system is introduced through the game, a creative practice, both to foster interaction and interactivity between individuals and to raise awareness of different points of view, emotions, behaviors and motivations. As well, this novel approach enhances the importance of the fact that knowledge is highly people-based.

It is said that resources hard to imitate are one of the attributes of the core competences of a company. It could be argued then, that the way colleagues interact and communicate to one another would be hard to imitate by other companies. The better they communicate, the better the knowledge sharing process will be. Communicating is not only related to the transfer of messages, but also to an effective understanding of other ideas, perspectives, emotions and behaviors so they can find a proper way of doing conversation. The results of the research are a valuable addition to the emotional intelligence individual competency concept, as participants became aware of their own and the others' feelings, emotions and behaviors by interpreting different personality traits.

As for the practitioners, they would acknowledge, understand and accept the differences, complementarities as well as the similarities between individuals based on the personality type. Moreover, the results of the research that showed that indeed a shared experience and language, mutual trust, confidence and a good communication influence employees' willingness to share knowledge will draw their attention more on the individuals than on technological systems.

It is the case of one group, where the same type of personality characterized more than only one member. Even though the type of personality is the same, this does not mean that they always work, think or act in the same way. Therefore, it is very important to acknowledge

both the differences and the similarities in order to understand the kinds of choices individuals are likely to make, their sources of motivation and how they react and respond to different challenges. Hence, a more open communication and interaction could be fostered.

In general, organizations have the tendency to employ individuals that have the same type of personality, share the same values, beliefs and possess the same mind-set. On the contrary, employees must be selected upon their differences on ideas, personalities, thus generating an atmosphere that encourages people to put on the table their knowledge and to respect each other's point of view.

Altogether, the research is an eye-opener of the fact that is significantly important for an organization to be first and foremost developed around a knowledge-friendly culture, where employees are encouraged to communicate face-to-face and embrace different points of view when solving complex problems, and maybe afterwards rely on technological systems for knowledge sharing as well.

Further directions for research

There are other aspects that would have been worth to take into account for the research thus suitable for further research.

The members of each group were from the same department, so they already interacted with one another. Selecting members from different departments to form groups and play the game would constitute an approach. It would have been interesting to see whether their communication and interactions have changed after playing together *typical!*™.

Another experiment could have been done by interviewing them before they played the game as well, and see what their perspective on knowledge sharing is and if and how they use it when involved in a project with a team. This way, a comparison would have been possible, to see the changes in their behaviors and understandings towards each other.

Finally, there are not only the individual characteristics, communication and knowledge management practices that influence the process of knowledge sharing. Other variables, like organizational culture, structures and norms or demographical factors have a certain influence on the willingness to share knowledge and can all be researched together for a better and more accurate understanding of the knowledge sharing process.

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9. APPENDICES

9.1 Appendix 1 - Interview

Asynchronous interview with Liselotte Lyngsø, managing partner at Future Navigator, answered on 31.10.2012

1.What was the idea behind *typical!*™? How and why was it created?
To train the interpersonal skills of groups that were embarking on an innovation project.

2.Could you name some practical experiences of playing the game (within companies, during workshops and seminars)?
Neurodan A/S
SiA in Norway
Den Kongelige Ballet
Hillerød Hospital – Intensive Care – listen louder to employees opinions (according to their personality type) about a new policy to be implemented

2.a.Which industries do the companies where *typical!*™ was played activate in?
- high-tech
- services & entertainment
- health care

2.b.Why did the companies want to play it? What was their need to resort to the game?
Improving working across traditional business boundaries.

2.c.What was the size of the companies?
All sizes – groups up to 60 people

3.What kind of feedback and results did the companies experience after playing *typical!*™?
Understanding that it is important to look at challenges from different perspectives. Problems cannot be solved at the same level as they were created. Hence, ***typical!*™** forces you to change your approach – works as an eye opener.

4.Is specific psychological/sociological knowledge or prior personality testing required?
NO, it is for everybody from 12 years old to 99, it is an advantage to go into this with an open mind – the point is NOT putting people in boxes but to get them out of them.

5.Could *typical!*™ be adjusted and modified to serve different needs and directions for discussion?
Yes, the activity cards can be specifically tailored to focus on specific situations/challenges.

6.Could it be seen as a facilitator for knowledge sharing between individuals?
It is preparing the ground for knowledge sharing building a bridge between people so that it becomes easier to communicate afterwards.

7.Did you play *typical!*™? What insights did you gain from it?
I have played it a lot and new insights emerge every time – it's a game that grows on you.

9.2 Appendix 2 – Questionnaire

Knowledge sharing questionnaire (answer in accordance with the personality type you think characterizes you best)

The type of personality:

- you consider characterizes you best:_____

1. How long have you been working for the company?
2. Do you work in the same department as your colleagues do?
3. How often do you work in teams?
4. Is it important that you have met the person before you talk to him/her?
5. How does knowing something about that person influence the way you communicate with him/her?
6. Mention your three main reasons for talking to a colleague.
7. Mention three ways of communicating to your colleagues.
8. Do you think of knowledge sharing more as a complex, difficult process, or an easy, natural activity? Please explain your answer.
9. Mark the following statements ascending from the one that suits you the most to the one that characterizes you the least:
    1. For me, knowledge sharing facilitates improvement ( )
    2. To me, knowledge sharing is pleasant and good ( )
    3. To me, knowledge sharing is recognition ( )
    4. For me, knowledge sharing opens up the road to creativity and innovation ( )
    5. To me, knowledge sharing is wise ( )
    6. Knowledge sharing provides me multiple solutions to problems ( )
    7. To me, knowledge sharing is access to a wide array of ideas and perspectives ( )
    8. Knowledge sharing gives me power and control ( )
    9. To me, knowledge sharing means bringing people together ( )

10. Did you gain a lot of insights related to your colleagues' personality type after playing **typical!™**? Are they useful for the way you communicate and share knowledge with them?
11. Knowing your colleagues better, do you consider that you can now trust them more in order to share your knowledge with them?
12. Will you share your knowledge only if you are confident that is useful for others or you like to share whatever piece of information that is interesting for you?
13. Give two-three examples of challenges that you have encountered when acting like a personality type that does not characterizes you.
14. What do you think of the game? (good feedback as well as critique)

Demographics (please mark (X) the category that is most appropriate)

Gender

- Male_____
- Female_____

Nationality _____

Age group

- 18-21_____
- 21-30_____
- 31-40_____
- 41-50_____
- 51-60_____

Level of education

- High School Degree____
- Bachelors Degree____
- Masters Degree____
- Doctorate (Phd) Degree____
- Other – please specify____

Industry/Specialization

- Social Sciences____
- IT/Telecommunications____
- Banking and Finance____
- Consulting/Business Service____
- Health Care____
- Hotel and Services____
- Architecture/Engineering____
- Education____
- Other – please specify____

9.3 Appendix 3 – Tables groups demographics

Gender	Nationality	Age group	Level of education	Industry/Specialization
Men	Danish	21-30	Bachelors Degree	Social Sciences
Women	Danish	21-30	Masters Degree	Social Sciences

Table 1 Demographics Group 1

Gender	Nationality	Age group	Level of education	Industry/Specialization
Women	Romanian	21-30	Masters Degree	IT/Telecommunications
Men	Croatian	31-40	Masters Degree	IT/Telecommunications
	Romanian	21-30	Bachelors Degree	IT/Telecommunications
	Italian	21-30	High School Degree	IT/Telecommunications

Table 2 Demographics Group 2

Gender	Nationality	Age group	Level of education	Industry/Specialization
Women	Greek	21-30	Masters Degree	IT/Telecommunications
Men	Danish	21-30	Bachelors Degree	Engineering
	Romanian	21-30	Bachelors Degree	IT/Telecommunications
	Greek	21-30	Bachelors Degree	IT/Telecommunications

Table 3 Demographics Group 3

	Findings			Implications
	Group 1	**Group 2**	**Group 3**	
Personality types	Adventurer/Expert	Expert/Romantic/ 2 Realists	Expert/Helper/Romantic/Perfectionist	-based on personality types, assumptions about the ways individuals interact, communicate and work could be made
Participants'& company's specialization	Social sciences /Consultancy	IT/Telecommunications /ICT	IT/Telecommunications & Engineering /Consumers' review	-profiles of knowledge workers -domains of activity part of the knowledge work within knowledge-intensive firms
Employment duration	2-4 months	Over 9 months	2-3 months (3 persons); 5 years (1 person)	-the ease to guess the type for those who knew each other for a longer period of time -the desire to collaborate on guessing the type for those who knew each other less than 4 month -the need to know more about work related behaviors and feelings by formulating questions and sketches around their work for those who knew each other less than 4 month
Team work	Not so often	Monthly	On a daily basis	-depends upon the tasks participants are involved in -more team work means better communication and collaboration
Work complexity	Research	Software development	Software development	-software development was considered by the participants as complex work,

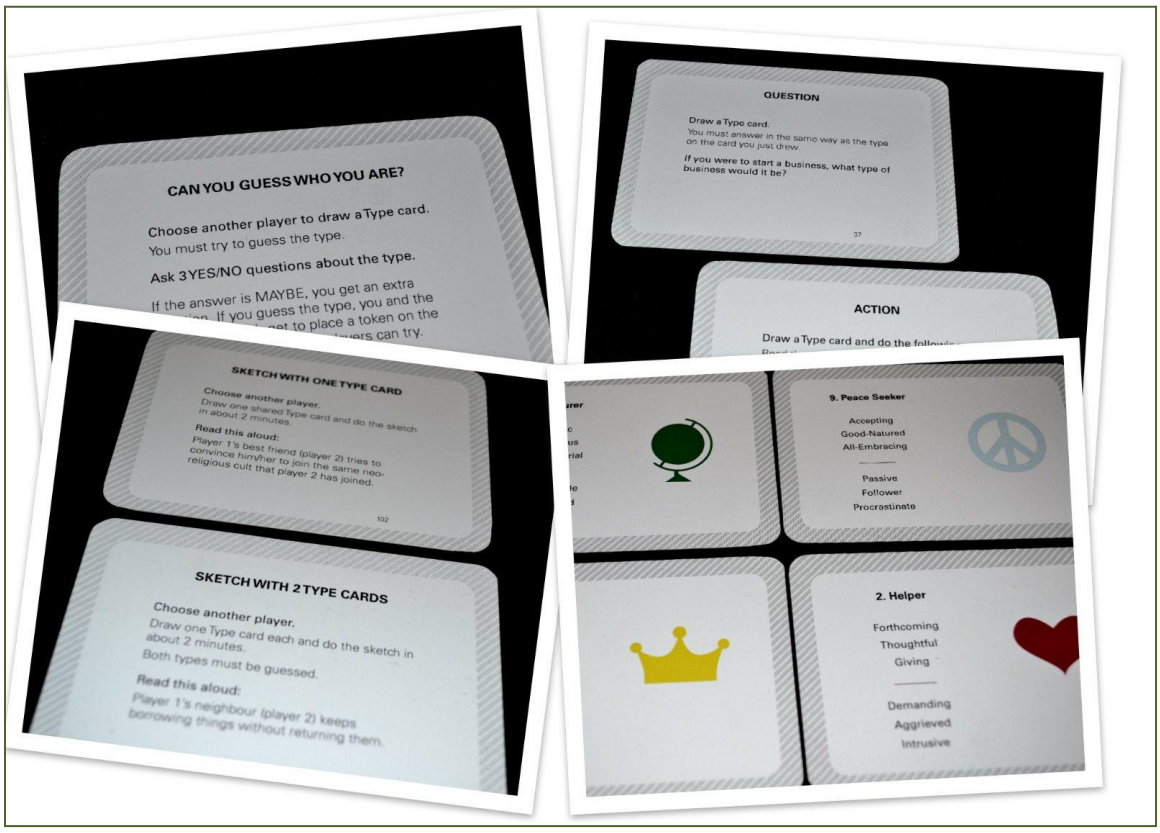
				whereas the research tasks were considered less complex -the difference between normal employees and interns contributes to the classification of the work as well
Knowing (something about) the person to talk to	No/not necessarily	Yes/not necessarily	Yes	-knowing something about the person in advance does facilitate conversations and dialogue, making it more friendly and personal -it is not such a big impediment not knowing the person in advance
Why you talk to the person?	-out of need for help & solutions -exchange information & learning -the need for company	-out of need for information/opportunities -relationship building -take a break from work	-the need for information -discuss and plan work -social talks	-conversations usually take place around work related knowledge -they exchange solutions to problems
Ways of communication	e-mails facebook group meetings	face-to-face e-mails chats meetings	face-to-face e-mails chats meetings	-team work encourage face-to-face communication -the more the tasks are more complex the more they need to meet and interact -face-to-face conversations foster trust and grant a rich medium for knowledge exchange

Relevancy of the knowledge communicated	Most of the times relevant to the others	Both relevant for the receivers and for the transmitter	Most of the times relevant to the others	-the relevancy of the knowledge shared goes hand in hand with their sense of self-efficacy -if individuals consider their knowledge to be useful to the others, they will be more likely to make the effort to share it -people tend to contact the individual in person for certain pieces of knowledge and advices. Thus, it is important that they feel confident that the contacted person has the correct knowledge -it is important to delimit between the work and non-work related knowledge
Trust	Important	Important	Important	-trust provide for confidence that no inappropriate judgments will be made when sharing knowledge
Challenges	Play the type they did not like/resemble them	Switch mindset between personalities Follow strict characterizations	A lot of concentration Conflicting decisions	-challenges add complexity, unfamiliarity encouraging individuals to exercise and improve their abilities and open up to new perspectives

Table 4 Summary findings

9.5 Appendix 5 - Photographs

Activity & Type Cards Type Board



Examples of Activity & Type Cards

Group 3 playing *typical*^{TM}

9.7 Appendix 7 - Video

Video - Group 2 playing *Typical*^{TM} – see it in the attached DVD