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Knowledge Sharing in Multinational Organizations

The Impact of Language

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Abstract

Knowledge sharing is a key collaborative activity that plays a significant role in organizational learning and performance. Knowledge sharing between organizational employees is important, not only for running basic administrative tasks, but also for major and critical organizational activities such as development and execution of organizational strategies meant to develop a competitive advantage in the market. The 21st century has seen a rise in multilingual workforces. Globalization, immigration and organizational international business dealings have rendered many organizations linguistically diverse. However, we do not find much research on information and knowledge sharing in multilingual work contexts. This study tries to fill this research gap and investigates the influence of language on knowledge sharing in multilingual organizations.

To understand the concept of language and its influence on knowledge sharing, this study adopts an interdisciplinary approach. Therefore, the theoretical framework is built on insights from sociolinguistics, linguistic anthropology and knowledge management. This analysis is specifically focused on determining the relationship between linguistic association and interpersonal knowledge networks, and language practices and knowledge-sharing interactions. Overall, the dissertation is comprised of four articles, each pair of articles answers one sub-question.

Using a multiple method approach, both, quantitative and qualitative investigations were conducted in a large Finnish multinational organization that has subsidiaries in more than 70 countries around the world. A survey containing 403 usable responses was analyzed using regression analysis and one-way ANOVA to understand the effect of linguistic association on interpersonal knowledge networks. In addition, 21 in-depth interviews were conducted with employees from different subsidiaries. These interviews were analyzed using inductive logic to understand the influence of language practices on knowledge-sharing interactions.

Analysis of the data shows that language influences both the development of knowledge networks and knowledge-sharing interactions between employees. Regarding knowledge networks, it was found that multilingual organizations have a language hierarchy in terms of access to information. Employees who speak the parent-company's language do not build knowledge-sharing connections with those who belong to a different language community. As most of the important positions in the organization are held by its home-country nationals, an employee's capability to speak their language provides him/her the opportunity to build a relationship with them and consequently gain access to critical information, which, in turn, lower his/her motivation to connect and share knowledge with others. Moreover, it was found that language diversity in personal knowledge networks positively correlates with employee performance. In other words, employees with highly multilingual

personal knowledge networks perform better than those with monolingual personal knowledge networks.

In terms of knowledge-sharing interactions between linguistically diverse employees, a major finding was that knowledge sharing interactions conducted in a non-native language differ from those conducted in a native language. It was found that employees adopt three different strategies to deal with problems in the knowledge-sharing process caused using a non-native language. These strategies – namely, discourse adjustment, language adjustment and media adjustment – play an important role in the successful exchange of knowledge between linguistically diverse individuals. Due to high awareness of linguistic differences, knowledge-sharing participants put in extra effort during interactions, leading to positive knowledge-sharing outcomes, which means linguistic differences can sometimes be helpful in knowledge-sharing contexts.

This study contributes to existing research by adopting a comprehensive view of the relationship between language and knowledge sharing. It focuses not only on the impact of language on the development of knowledge networks, but also on the influence of language differences on the process of knowledge sharing that is knowledge-sharing interactions.

Abstrakt

Kunskapsdelning en är en nyckelaktivitet som spelar en signifikant roll för organisationens lärande och prestation. Kunskapsdelningen mellan medarbetarna är ytterst viktigt, inte bara för att hantera administrativa uppgifter, men även som förutsättning för de mest kritiska aktiviteterna såsom utvecklingen och verkställandet av strategier för att uppnå konkurrensfördel på marknaden. Under tjugohundratalet har andelen flerspråkig arbetskraft i organisationer ökat. Globalisering, immigration och internationell affärsverksamhet har förändrat många organisationer till arbetsplatser med språkligt mångfald. Trots detta finns det få undersökningar om informations- och kunskapsdelningen i flerspråkiga arbetssammanhang. Genom att studera språkets inflytande på kunskapsdelningen i mångspråkiga organisationer bidrar denna avhandling till att fylla denna forskningslucka.

För att bättre förstå begreppet språk och dess inflytande på kunskapsdelningen införs i denna forskning ett tvärvetenskapligt angreppssätt. Den teoretiska referensramen är därför uppbyggd på forskning inom sociolingvistik, lingvistisk antropologi och kunskapsledning (knowledge management). Analysen fokuserar speciellt på att bestämma relationen mellan språkbruk och interpersonella kunskapsnätverk samt språkpraktiker och växelverkan i kunskapsdelning. Avhandlingen består av fyra artiklar som besvarar frågorna kring dessa relationer.

Genom att använda en multimetodisk ansats genomfördes både kvantitativa och kvalitativa studier inom ett stort finländskt multinationellt företag med dotterbolag i över 70 olika länder. En enkätundersökning som besvarades av 403 respondenter analyserades med regressionsanalys och enkelriktad ANOVA för att förstå inverkan av språkbruk på interpersonella kunskapsnätverk. Därtill djupintervjuades 21 medarbetade vid olika dotterbolag. Dessa intervjuer analyserades genom induktiv logik för att förstå hur språkpraktiker påverkar växelverkan i kunskapsdelningen.

Analyserna visar att språket påverkar både utvecklingen av kunskapsnätverk och växelverkan i kunskapsdelningen mellan de anställda. Beträffande kunskapsnätverken visar resultaten att det existerar en språkhierarki i flerspråkiga organisationer när det gäller tillgången till information. Medarbetare som talar moderbolagets språk bygger inte upp relationer som främjar kunskapsdelningen med de anställda som tillhör en annan språkgemenskap. Eftersom den största delen av organisationens viktiga befattningar handhas av finsk- eller svenskspråkiga medarbetare, ger de anställdas kunskaper i dessa språk dem möjligheten att växelverka med dessa och därför få tillgång till viktig information, vilket i sin tur kan minska deras motivation att ta kontakt och dela kunskap med andra. Därtill visar resultaten att språklig mångfald i personliga kunskapsnätverk korrelerar positivt med medarbetarnas prestation. Med andra ord, anställda med mångspråkiga personliga kunskapsnätverk presterar bättre än de med enspråkiga personliga kunskapsnätverk.

När det gäller växelverkan i kunskapsfördelningen mellan medarbetare som talar olika språk visar resultaten att växelverkan på ett främmande språk avviker från växelverkan på modersmålet. Resultaten i denna avhandling visar på tre olika strategier som de anställda tillämpar när de möter problem orsakade av användningen av ett främmande språk i kunskapsdelningsprocesser. Dessa strategier, det vill säga anpassningen av diskursen, anpassningen av språket och anpassningen av mediet, spelar en viktig roll i en lyckad kunskapsdelning mellan individer som talar olika språk. Eftersom individerna i kunskapsdelningsprocesserna var ytterst medvetna om språkskillnaderna ansträngde de sig att lyckas i dessa processer, vilket ledde till positiva resultat. Detta innebär att språkliga skillnader ibland kan främja kunskapsdelningen.

Denna avhandling bidrar till den existerande forskningen genom att mångsidigt granska relationen mellan språk och kunskapsdelning. Den fokuserar inte enbart på språkets inverkan på utvecklingen av kunskapsnätverk, men även på hur språkskillnaderna påverkar samspelet i kunskapsdelningen.

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Part I

1. Introduction

What drives organizational success? One can point to a number of factors some of which of critical value and others marginal. Both, material and intellectual resources are important for organizational performance. However, availability of these resources is not enough. It is the efficient coordination between them that differentiates one organization from another (Liao et al., 2007). Maximal coordination between organizational resources is dependent on communication between employees (Conrad & Pole, 2012; Mei, Lee & Al-Hawamdeh, 2004). As the brain of an organization, individuals coordinate their actions and develop processes that define the nature of the organization and its position in the market (Foss, Husted & Michailova, 2010; Cabrera & Cabrera, 2005). One of the most important activities of an organization's employees is exchange of existing knowledge as well as creation of new knowledge through mutual collaboration (Nonaka & Takeuchi, 1995; Krogh, 2002; Widen & Suomi, 2007). Knowledge sharing between organizational employees is important, not only for running basic administrative tasks, but also for major and critical organizational activities such as development and execution of organizational strategies meant to develop competitive advantage in the market (Wang & Wang, 2012; Widen, 2007). Organizational employees engage in knowledge sharing to garner colleagues' advice and opinions for handling day-to-day business matters and solving complex problems (Ghaznavi, Perry & Logan, 2011; Talja & Hansen, 2006). It is this continuous exchange of knowledge between employees that leads to the development of new ideas and innovations (Liao et al., 2007). This is how Steve Jobs put it:

> Innovation comes from people meeting up in the hallways or calling each other at 10:30 at night with a new idea, or because they realized something that shoots holes in how we've been thinking about a problem. It is ad hoc meetings of six people called by someone who thinks he has figured out the coolest new thing ever and who wants to know what other people think of his idea. (Jobs, in BusinessWeek, Oct. 12, 2004)

Knowledge sharing is a human behavior and just like any other behavior is susceptible to influence and to be influenced by many individual and contextual factors. Sometimes it is a rational behavior where people help each other to achieve a mutual goal (Cabrera & Cabrera, 2005). In other cases, it entails an affective behavior where people share a feeling of friendship and a sense of belonging (Camelo-Ordaz et al., 2011). That is, motivation for sharing could be diverse. However, having a motivation to share is not enough. Sometimes desire to share knowledge does not translate into the act of sharing because the individual does not know how or with whom to share it (Reychav & Weisberg, 2010; McDermott, 1999). This means knowledge-sharing behavior is not only about what encourages or discourages knowledge exchange, but also how knowledge sharing occurs. In recent years, a plethora of research on

organizational knowledge sharing has been conducted (Hall & Goody, 2007; Lahtinen, 2013; Lin, 2007; Widen, 2007; Vong & Siganek, 2016).

In the last decade, language has emerged as an important influential factor that has consequences for organizational operations and activities. There are two main reasons underlying the importance of language in organizations. First, transnational business dealings such as mergers, acquisitions, foreign subsidiaries and exports have increased over the years (Hill, Jones & Schilling, 2014; Louhila-Salminen, 2002). As a result, international recruitment and expatriate employees have become an integral part of multinational organizations' strategies. Moreover, immigration waves driven by economic and political motivations are fueling diversity, particularly in developed countries. A consequence of business globalization and immigration is the rise in language diversity among organizational workforces (Charles, 2006). Language diversity is known to trigger friction between different speech communities, thus posing a challenge for organizational internal coherence (Lauring & Klitmoller, 2015). Second, there is a rising trend towards using English as the official corporate language even in organizations based in countries where English is neither the first nor the second language, such as Finland. This means most organizational employees must communicate in a language that is not their mother tongue, which can lead to loss of quality in internal communications.

Although language (diversity) is seen as an important factor in organizational operations, its relevance for knowledge sharing has not attracted sufficient attention (Lauring & Selmer, 2011). Language is one of the factors that can have a dual impact on knowledge sharing. First, as a social factor, language can trigger knowledge exchange between employees who speak similar languages because of their shared linguistic identity. Second, language (diversity), as a medium of interaction, can influence how knowledge is expressed and communicated. The relationship between language and knowledge sharing is quite intuitive; however, recent research is lacking in this regard (Schomaker & Zaheer, 2014). In information science research we do not find any in-depth study on the influence of language on knowledge sharing, particularly at the individual level. Therefore, this study aims to analyze the influence of language on knowledge sharing in multilingual organizations.

This study contributes to extant research by adopting a comprehensive view of the relationship between language and knowledge sharing. It focuses not only on language as an enabler/inhibitor of knowledge sharing, but also on the effect of language differences on the process of knowledge sharing that is knowledge-sharing interactions. Another important contribution of this study is its use of theoretical insights from sociolinguistics and linguistic anthropology. Both disciplines have studied language in the social context and they provide important insights into language dynamics in multilingual environments. Use of external theories in knowledge management has been of great value for developing our understanding of employees' knowledge-sharing behavior (Wang & Noe, 2010). It is believed that insights from

linguistics will provide conceptual and analytical power to the study of the relationship between language and knowledge sharing.

The study is built on four articles investigating the influence of language on knowledge sharing. The remainder of this chapter will identify the current research gap, introduce research questions and clarify some underlying assumptions of this study. The chapter ends with a detailed presentation of the structure of the study.

1.1. Research gap

This study focuses on organizational knowledge sharing; therefore, literature from both information science and business management is relevant for this research. This section will focus on these two fields of research and outline the contributions of this study and the research gap it aims to fill.

In information science, discussion on the phenomenon of language diversity in relation to knowledge sharing is not prevalent. Nevertheless, language diversity and multilingual contexts have been studied in closely related fields such as information services (Picco, 2008; Skrzeszewski, 2004; Ulvik, 2010; Shoham & Rabinovich, 2013; Qalaf & Mika, 2009), information seeking and retrieval (Flores & Moreira, 2016; Hashemi & Shakery, 2014; Luo et al, 2008; Savolainen, 2016; Kim et al., 2015; Kishida & Ishida, 2009) and knowledge management systems (Pariyar et al., 2014; Yang et al., 2008; O'Leary, 2009).

How should libraries and organizations design their *information services* to meet the needs of a linguistically diverse community has been an important topic of investigation in recent years (Qalaf & Mika, 2009). Increasingly diverse demographics in the western world requires a shift in the design of traditional information services (Shoham & Rabinovich, 2008). Employment of linguistically diverse staff and translation services are recommended strategies to cater to the information needs of linguistically diverse people, particularly those who do not speak the majority language (Driver & Wall, 2007; Josy & Abdullahi, 2002). The main goal of language-diversity-driven information service design is not only to provide information in different languages, but also to familiarize minority-language speakers with important information sources in different languages (Neelamegham & Chester, 2007; Shoham & Rabinovich, 2013).

Information seeking and retrieval in multilingual contexts have been underlined as important issues to attend to (Nzomo, Ajiferuke, Vaughan & McKenzie, 2016; Kim & Yoon, 2012). In a recent study, Savolainen (2016) proposes that language is one of the major sociocultural barriers to information seeking. This is particularly the case for ethnic and linguistic minorities as well as immigrants (Jeong, 2004; Caidi et al., 2010; Fisher et al., 2004). Lack of skill in the majority language can restrict an individual's access to novel information resources (Mehra & Bilal, 2007). As a result, such individuals resort to customary information resources available in their native language, which may not satisfy their information needs (Savolainen, 2016;

Lopes & Ribeiro, 2013). The influence of language diversity on information behavior, however, is not only limited to minorities. Multilingualism at large has important implications also for the majority language group that is consistently exposed to information in multiple languages, for example, on the web. Today it is customary to translate important information in order to serve a wider audience. However, translation quality can compromise content meaning, particularly when information is of a critical nature (Kishida, 2008). A classic example of this is patenting. Patents are important sources of information and knowledge. They are written in technical language and registered and translated into different languages (Chen & Chiu, 2013; Kämmer, 2010). Thus, misunderstandings due to translation are a real possibility, which increases the complexity of the information-seeking process (Chen & Chiu, 2013).

In the field of *knowledge management*, some research has been conducted on language and knowledge sharing. A particular focus has been on the development of knowledge management systems that can support and enhance knowledge sharing between employees (Dalkir, 2009; Pariyar, Lin & Ishida, 2014). The main objective of the development of knowledge management systems is to ensure individuals can preserve their knowledge as well as connect with others to share it (Yang, Wei, & Li, 2008). Language is an important factor in the successful production and performance of such systems and it has drawn a lot of interest among researchers (Cunningham & Bontcheva, 2005). Technological systems are devoid of human intelligence regarding language use. Therefore, the ability of a system to understand language in information retrieval, extraction and presentation is seen as a critical system development issue (Maybury, 2001; Segev & Gal, 2008). For example, knowledge databases contain a huge amount of data and quick retrieval of a piece of information or knowledge source (such as the name of an expert) will require generating a query (Kaljurand, Kuhn & Canedo, 2015). However, there is an unlimited number of words and combinations knowledge seekers can use in their queries. In this regard, knowledge management systems need to have a great capacity to adapt to the language used by a knowledge seeker to provide the most relevant information for them (Seki, et al., 2009). Development of such knowledge management systems usually requires dealing with different language-related issues, such as coping with the linguistic and grammatical structure of queries and adopting text genres according to different fields such as engineering, marketing, R&D, medicine (Ciravegna, 2001; Pei, 2009).

Recently, there has been an interest in multilingual knowledge management systems intended to support knowledge sharing between linguistically diverse employees in an organization (Pariyar, Lin & Ishida, 2014). According to O'Leary (2009), such systems usually have one or more of three different types of capabilities that help with knowledge flow across linguistic boundaries. First, content capability refers to a system being able to search knowledge content in different languages. Second, conversion capability refers to a system

that translates knowledge into the language of a knowledge seeker. Third, connection capability entails a system connecting a knowledge seeker with a linguistically diverse knowledge source.

In the field of *business management*, language, particularly in the context of diversity, has been a topic of discussion over the past few years (Barner-Rasmussen et al., 2014; Brannen, Piekkari & Tietze, 2014; Mäkelä et al., 2007; Klitmoller & Lauring, 2013). However, as concerns the analysis of the relationship between language and knowledge sharing, international business research has been the most active. What differentiates a multinational organization from a local organization is its ability to use knowledge created in its different subsidiaries (Mäkelä, 2006). However, language differences can create serious problems in knowledge sharing across borders. Although organizations adopt a common corporate language policy, proficiency of employees in the corporate language can vary (Barner-Rasmussen & Arnio, 2011). Consequently, it can affect the quality of knowledge-sharing processes.

A recent study by Peltokorpi (2015) conducted in subsidiaries of a multinational organization showed that employees' competence in the corporate language strongly influenced their capability to share knowledge of local competitors, know-how and skills with the head office. Similarity between native languages of organizational subsidiaries can also influence knowledge transfer processes. Ambos and Ambos (2009) studied knowledge sharing effectiveness in different multinational organizations and included linguistic distance as an influential factor in their model. They built an indicator of linguistic distance using the genealogical classification of languages. This classification clusters genetically similar languages together, which means languages that have common linguistic ancestors are grouped together. The higher the linguistic distance is, the lower is the language commonality, and vice versa. They noted a mediating effect of linguistic distance on technology-based coordination that influences the effectiveness of knowledge transfer. Schomaker and Zaheer (2014) developed a variant of linguistic distance called linguistic relatedness to explore the effect of language on knowledge transfer across borders. Linguistic relatedness refers to a commonality between structural features of two languages. Unlike linguistic distance, which focuses on differences between languages, linguistic relatedness focuses on the commonalities between two languages. According to their findings, linguistic relatedness between the *lingua franca* of an organization and the local language of manufacturing plants has positive consequences for knowledge transfer.

Most of the research on international business is concerned with knowledge transfer, that is, knowledge sharing across borders between subsidiaries. However, there is not much discussion about knowledge sharing within organizations between employees who have diverse linguistic backgrounds.

Although important contributions have been made by the literature discussed above, there is still a need to further investigate the relationship between language and knowledge sharing. Within the literature on information science, research on language and knowledge sharing is very limited.

Multilingualism as a context has been studied in different areas, but not particularly in relation to knowledge sharing. The closest area of research in which the issue of language diversity has been investigated is knowledge management system development. Although such systems are useful for knowledge sharing, previous research shows that most knowledge sharing occurs at the individual level, where employees simply bypass knowledge management systems and databases (Brown et al., 2013). Moreover, technological solutions can also be counterproductive to knowledge sharing if there is a misfit with organizational structure and culture (Allen, Karanasios & Norman, 2014). Managing language differences in the development of knowledge management systems is mostly an operational issue that can be taken care of by developing better translation capabilities and system designs. This is not the case with individual-level knowledge sharing, since it is a relation-based interactive process strongly influenced by individuals' didactic tricks and interaction skills (Eppler, 2007).

A plausible explanation for the lack of research on language diversity and knowledge sharing is that language is often conceived of as a component of culture. Therefore, knowledge sharing research in the context of cultural diversity is thought to cover the issue of language diversity as well. There is some research in the field of information science that has investigated knowledge sharing in multicultural contexts (Jiacheng et al., 2008; Li, 2011). Many of such studies bring forward the issue of language diversity, but very briefly (King, Kreuger & Pretorius, 2007; Wei, 2009) since their main focus is on culture; thus, the impact of language diversity on knowledge sharing is not analyzed in-depth. In a way, culture has overshadowed the influence of language diversity on knowledge sharing (Welch & Welch, 2008). Although language is a part of culture, its relevance to knowledge sharing does not always need to be seen through the lens of cultural diversity. Language is a complex phenomenon that has strong influence on socialization and communication in organizations (Tange & Lauring, 2009). By focusing on language as a separate concept, its influence on knowledge sharing can be more readily identified and understood. Moreover, such an approach will be helpful in developing knowledge management policies aimed at mitigating language-related issues arising in the exchange of knowledge between linguistically diverse employees.

International business research, however, has focused more on language, but there are two issues. First, it has mostly focused on knowledge transfer across borders between subsidiaries. Today organizations are not only multilingual at the international level in terms of subsidiaries operating in different countries with different local languages, but also at the domestic level where employees within subsidiaries have diverse linguistic backgrounds. Local multilingualism is even more important than international multilingualism because knowledge sharing within units such as teams, departments or subsidiaries takes place much more frequently than it does between units across borders. It means employees have to deal with linguistic

differences on a daily basis while engaging in knowledge-sharing activities. Second, this research adopts a rather simplistic view of language by focusing on structural and competence-related issues. However, language is a very complex concept; therefore, investigation of its effect on knowledge sharing requires a multifaceted approach. According to Edwards (2009), focusing only on one aspect of language can cripple the analysis of its relationship with other phenomena under investigation.

The purpose of the above discussion was to identify the existing research gap in knowledge sharing in linguistically diverse organizational contexts. The main contribution of this study lies in the information science field; however, knowledge sharing, as apparent from the above discussion, is an interdisciplinary topic. Thus, the contribution of this study is not limited to information science.

Against the research background discussed above, the main objective of this research is to investigate the effect of language on knowledge sharing at the individual level. This question is divided into two sub-questions:

How does linguistic association influence informal knowledge networks in multilingual organizations?

How do language practices influence interlinguistic knowledge sharing in multilingual organizations?

1.2. Key concepts and theoretical assumptions

This study is situated within knowledge-sharing research. In the following discussion, definitions of relevant concepts and theoretical assumptions are presented to lay the groundwork for a better understanding of the research questions and the context in which they are addressed.

In previous research, knowledge has been defined in several ways. Nonaka et al., (2006) consider it a "justified true belief" (p.1118). Tavana (2012) defines it as stocks of expertise. Often information and knowledge are used interchangeably; for example, Rainer et al., (2013, p.90) understand knowledge as "information in action", and Tise and Raju (2016, p.67) define it simply as "actionable information". According to Dixon (2000, p.13), knowledge refers to the "meaningful links people make in their minds between information and its application in action in a specific setting". While many researchers believe in differentiating between information and knowledge, others see very little practical utility in such distinction (Bartol & Siravasta, 2002; Case, Given & Mai, 2016; Earl, 2001; Wang & Noe, 2010). According to Schneider (2007), distinction between information and knowledge is very problematic and difficult to hold in practice. Frequently, organizational employees themselves are not able to clearly draw a line between knowledge and information. Therefore, in this research, information is considered as knowledge if it is helpful to accomplish work tasks.

Linguistic association refers to the sense of belonging to a speech community or a group of people due to a shared common native language (Bryman, 2006; Edwards, 2009).

Language practices refer to the usage of language by individuals in active interactions either face-to-face or through a communication medium (Regan & Chasaide, 2010).

Knowledge sharing is defined as the exchange of task-related information, advice and expertise to help others and to collaborate with others on daily tasks, problem solving and development of new ideas (Wang & Noe, 2010).

Informal knowledge networks refer to social relations and informal information links between employees that are used for knowledge sharing and are beyond the organization's direct influence (Allen, James & Gamlen, 2007).

Inter-linguistic knowledge sharing refers to the exchange of knowledge between employees who have different linguistic backgrounds. This kind of knowledge sharing can occur as a one-to-one process or in a group.

To understand the concept of language and its influence on knowledge sharing, this study draws on insights from linguistics. A core assumption is that language is a complex phenomenon. To enquire about its effect on knowledge sharing, a deep understanding of language itself is compulsory. To achieve this, linguistics is the best option because of its theoretical and conceptual maturity, which is far superior to that of the fields of knowledge management and management studies. Within linguistics, the plethora of research conducted on language can be divided into many subfields, such as descriptive linguistics, theoretical linguistics, computational linguistics, psycholinguistics, linguistic anthropology and sociolinguistics (Hayes et al., 2013). In this study, insights and concepts are drawn from sociolinguistics and linguistic anthropology. These fields focus on the relationship between language and society, and study language as a social behavior, which aligns well with the purpose of this study.

As mentioned by Mäkelä (2006), social relationships shape the flow of knowledge; this study assumes that relationships and connections are the basis for knowledge sharing. This is in accordance with Granttover's (1985) argument about embeddedness. This study analyzes knowledge sharing between interacting employees. Hence, it studies knowledge sharing in the context of product development discussions, advice seeking from colleagues and team problem solving. It also means that the focus is on individual-level knowledge sharing, also called interpersonal knowledge sharing (Ipe, 2003). Interpersonal knowledge sharing occurs between individuals both formally and informally (Allen & Karanasios, 2011), although it is believed that most knowledge sharing ocucurs informally via e-mail, phone, and during face-to-face interactions and brief gatherings around coffee machines (Mäkelä, 2006). This kind of knowledge sharing happens naturally and spontaneously on a daily basis (Kilduff, 2003; Titi, 2013). It differs from organizational-level knowledge sharing where knowledge is exchanged in a planned and organized way between two units that can be departments, subsidiaries or even

organizations. The term used for such type of knowledge sharing is knowledge transfer (Wang & Noe, 2010).

2. Literature review

This chapter is subdivided into two main sections. The first one reviews relevant literature on knowledge sharing. The second reviews literature on language and introduces relevant concepts from sociolinguistics and linguistic anthropology. An outline of this literature review is shown in Figure 2.1.

Literature review	Theme 1	Theme 2	Theme 3
Knowledge sharing	Knowledge	Interpersonal knowledge sharing	Informal knowledge networks
Language	Linguistic association	Linguistic practices	
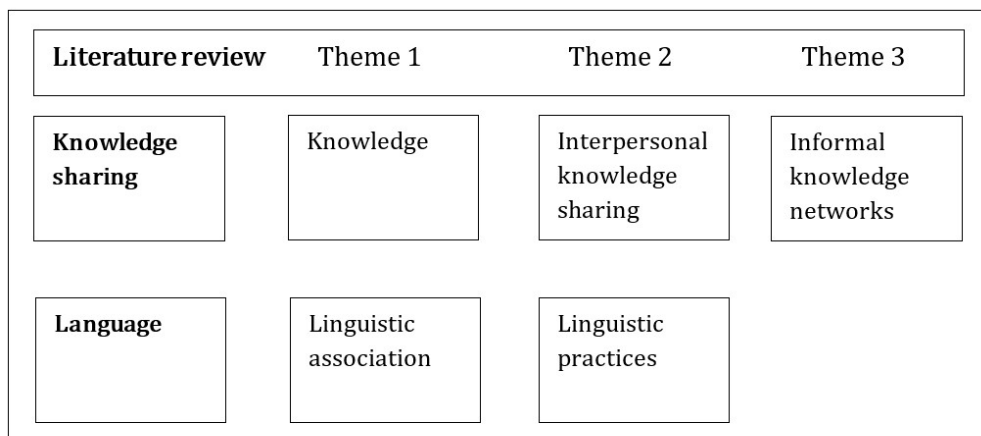
Figure 2.1. Literature review outline.

2.1. Knowledge sharing

The discussion on knowledge sharing revolves around three major themes. The first theme is the concept of knowledge. Different views on what knowledge is are presented; then, how knowledge is conceived of in this thesis is explained. The second theme is interpersonal knowledge sharing. The difference between interpersonal and organizational knowledge sharing is discussed. After justifying the focus on interpersonal knowledge sharing in this study, a brief overview of research on this topic is presented. The discussion finishes with a critical note outlining the gap in research on knowledge-sharing interaction. The third theme relates to informal knowledge networks. The difference between formal and informal networks is explained. Then, an overview of research on informal networks within knowledge management literature is presented. This section ends with a critical note on the lack of research on informal network development.

2.1.1. The concept of knowledge

The last two decades have seen a tremendous amount of research on organizational knowledge resulting in an array of theoretical contributions. Knowledge has become an important scientific notion in contemporary society where innovations and human progress are seen as an output of expert usage

of knowledge. In organizational research, knowledge has been granted the status of a strategic resource that helps to advance in the competitive market by promoting the potential of innovation and learning (Grant, 1996; Leiponen & Helfat, 2009). Over the years, two theoretical conceptualizations of knowledge have emerged in the literature (McIver et al., 2012).

The traditional theoretical stance conceives knowledge as a "justified true belief" that is possessed by an individual and is separable from him (Nonaka, 2009, p.1118). The second stance, the practice-based approach, assumes that knowledge is in a state of flux and lies in the activities and practices of individuals (Mäkelä, 2006). In the following discussion, the traditional view on knowledge will be presented as the epistemology of possession, while the practice-based view will be presented as the epistemology of practice (Cook & Brown, 1999). It is not the intention of this study to present an exhaustive review of the contending epistemologies, neither does it aim to build a debate on the nuances of these concepts. The purpose of this discussion is to present a brief overview of different perspectives on knowledge and their logical underpinnings and, in light of this, to outline how knowledge is understood in this study (for a more exhaustive discussion on knowledge, see e.g. Blackler, 1993; Cook & Brown, 1999; Polanyi, 1966; Schneider, 2007; Spender, 1996; Tsoukas & Vladimirou, 2001).

The epistemology of possession

In traditional epistemology, knowledge is a skill or expertise that can be transferred across individuals and organizations to make them competent in problem solving and handling difficult tasks. Cook and Wagenaar (2011) acknowledge the role of Cartesian epistemology, which insists on the idea of "agglomeration" in the traditional concept of knowledge (Ibert, 2007). The core belief in the Cartesian view is the assumption of knowledge as a true reality that exists even prior to our understanding and exploration of it. In addition, it can be discovered only through reasoning, which minimizes the influence of emotions, biases and subjective interpretations (Cook & Brown, 1999). This concept of true knowledge ultimately lays the basis of traditional epistemology in which knowledge is seen to be present in the minds of individuals and is expressed in objective terms (Ibid).

Researchers in this school of thought are primarily concerned with the systematic management of knowledge by analyzing its characteristics (e.g., tacit, explicit), units (individual, group, organizations) and the relationships between units (networks, communications) (Argote, McEvily, & Reagans, 2003). The dominant discussion within traditional epistemology builds on research focusing on the characteristics and forms of knowledge. The distinction of explicit and tacit knowledge elaborated by Nonaka and Takeuchi (1995) is thought to be the most influential in knowledge management research (Evans, Dalkir, Bidian, 2014). This distinction has its roots in Polanyi's (1966) work that introduced the concept of tacit knowledge. His dictum "we know more than we can tell" has been widely quoted in the literature in

relation to his work of building different taxonomic classifications of knowledge (McIver et al., 2012). Tacit knowledge is defined as "non-codified, disembodied expertise that is acquired via the informal up-take of learned behavior" (Howells, 1996, p.2). Tacit knowledge is difficult to locate and separate from its possessor. As it develops with experience within the individual's mind, it has the characteristic of being "sticky" (Zander & Kogut, 1995), whereas explicit knowledge "can be expressed in formal and systematic language and shared in the form of data, scientific formulae, specifications, manuals and the like" (Nonaka et al., 2000, p.3). This latter type of knowledge is relatively easier to transfer from one place to another due to its context-independent features. Overall, tacit knowledge has enjoyed the prestigious status and studies addressing the tacit dimension of knowledge are abundant. There is common agreement that tacit knowledge is a source of sustainable competitive advantage (Ambrosini & Bowman, 2008).

The impact of the taxonomic distinction of knowledge is apparent in the plethora of studies that focus on knowledge conversion (tacit to explicit) and knowledge-sharing mechanisms (e.g. Chien, Shu & Lan, 2010; Gorovaia & Windsperger, 2013; Riusala & Suutari, 2004; Scully et al., 2013). One of the main benefits of using taxonomies lies in their practical utility. It is easy to develop empirical studies and advance theoretical concepts under the aegis of traditional epistemology of knowledge. Without doubt, traditional epistemology has contributed enormously to the development of knowledge management literature by providing influential theories in the domain of organizational learning and innovation (Styhre, 2003).

The epistemology of practice: Knowing

In the last two decades, the traditional concept of knowledge, despite its dominance, has been vigorously challenged by the proponents of "knowing"—a practice-based view of knowledge (e.g. Amin & Cohendet, 2004; Orlikowski, 2002; Schön 1983; Strati, 2003). The introduction of the verb "knowing" is based on the assumption that knowing suggests "action as the active and ongoing accomplishment of problem solving", which makes it distinct from the noun "knowledge" that "connotes stable objects, facts, and dispositions" (Kuhn & Jackson, 2008, p.2). The practice-based approach imbued by philosophical insights of various traditions such as phenomenology, pragmatism, symbolic interactionism and post-structuralism, has been most influential in strengthening the theoretical basis of organizational knowing research (Nicolini, Gherardi & Yanow, 2003). Philosopher Gilbert Ryle (1948) was amongst the pioneers who emphasized the epistemic aspect of the practice of knowledge work by distinguishing between "knowing what" and "knowing how". *Knowing what* is considered as knowledge that exists in the form of predefined procedures, instructions and rules in our cognitive repertoires, whereas, *knowing how* is the ability and ways to perform in action in a certain situation with or without previous understanding of how to do it. Ryle argues that many intelligent performances are sometimes conducted without any

prior understanding of how to carry them out. Therefore, knowing how does not always need knowing what. The concept of *knowing how* has been subject to multiple interpretations, as some scholars treat it as tacit knowledge and others as "knowing"—distinct from explicit and tacit knowledge. However, what is widely agreed is that *knowing how* constitutes the epistemic value of the action in knowledge work.

Practice is a system composed of activities in which knowing and doing are inseparable (Nicolini et al., 2003). As explained by Maturana and Varela (1987, p.27), "knowing is doing and doing is knowing". A tenet central to the understating of knowing is that learning connotes social practice and considering only cognitive activity as central to the learning process is misleading. It is argued that human knowledgeability should not be conceived of as quanta of definite rules and procedures assimilated into mental repositories and manifested in written texts. Conversely, it should be taken as "forms of social expertise" situated in particular contexts (Nicolini et al., 2003). Knowing does not have possession-like characteristics; it discloses itself only in a knowledgeable action while denying the existence of unchangeable certainty (Ibert, 2007; Orlikowski, 2002).

Lack of objectivity coupled with its dynamic nature does not allow knowing to exist in a complete form (Knorr, 2001). Orlikowski (2002, p.252) sheds light on the concept of knowing saying that "it is continually enacted through people's everyday activity; it does not exist out there (incorporated in external objects, systems) or in here (inscribed in human brains, bodies or communities". It is always in flux and cannot be objectified and converted like a commodity, as posited by the rationalistic or traditional approach (Ibert, 2007). The concept of *transfer* in knowing lies within participation in practice, that is, doing things together. By sharing activities, experiences, stories of challenges and problems with others, a common understanding of these practices is built that leads to innovation and learning (Ringberg & Reihlen, 2008).

Integrated view

Epistemological beliefs affect the way we define the boundaries of a concept and unit of analysis (Schneider, 2007). Therefore, discussion of different epistemological concepts is introduced here before moving on to the main topic—knowledge sharing. Studying knowledge sharing, Dhanaraj et al. (2004) measured knowledge in terms of managerial techniques, knowledge about foreign cultures, written knowledge in the area of technology and manuals. According to McIver et al. (2012), such an approach represents a traditional way of thinking about knowledge. However, Orliwoski (2002), inspired by the practice-based view on knowledge, studied organizational knowing by questioning about the day-to-day activities of a multinational global team, while excluding knowledge about techniques and learned expertise from the study.

It is agreed that knowing should not be taken as a substitutive concept of knowledge. It is a complementary concept that provides a different perspective on organizational learning (Cook & Brown, 1999). In this study, content of knowledge is not important as such, the focus is on *sharing* of all kinds of knowledge. However, what will be considered as knowledge and how it will be studied require some pre-understanding. Here, a pluralistic epistemological perspective is adopted in which knowledge can exist in different forms and can move between individuals, but it emerges in collective activities (Mäkelä, 2006). This approach is in line with Cook and Brown's view (1999) who acknowledge the value of learning in practice while maintaining the traditional understanding of explicit and tacit knowledge. Hence, knowledge in this study relates to tacit and explicit knowledge as well as practice-based learning that occurs in daily work routines and collective problem solving. Like most previous studies on knowledge sharing, it is recognized that knowledge can be shared between individuals through different defined mechanisms. Furthermore, the importance of how organizational employees do things in practice, such as development of new products, is also acknowledged.

2.1.2. Interpersonal knowledge sharing

Levels of knowledge sharing (interpersonal vs. organizational)

According to Delong and Fahey (2000), individuals share different forms of knowledge in different ways and at different levels. Although knowledge flows primarily between individuals, the level of analysis can vary. Knowledge sharing can be seen as an individual-level activity between persons, or a collective activity between departments or subsidiaries (Foss, Husted, Michilova, 2010). Therefore, in previous knowledge-sharing literature, there are two main levels of analysis: interpersonal and organizational. Most previous knowledge-sharing research has been conducted at the organizational level of analysis (Ipe, 2003). In recent years, however, individual-level knowledge sharing, also known as interpersonal knowledge sharing, has attracted an increasing interest (Wang & Noe, 2010).

At the organizational level of analysis, knowledge-sharing research adopts a macro- perspective. The focus is usually on knowledge flow between units bigger than the individual, such as teams, departments and subsidiaries (Tangaraja et al., 2016). An important theme in this line of research is related to understanding the flow of knowledge from one place in an organization to another. For example, research on international business tries to understand how knowledge produced in one subsidiary can be transferred to and utilized in another subsidiary that, although part of the same organization, has a different context and environment (Hansen, Mors & Lovas, 2005; Noorderhaven & Harzing, 2009). Organizational-level knowledge-sharing research has been of great importance; particularly, it has been helpful in outlining formal organizational policies, processes and mechanisms that support knowledge-sharing processes. Moreover, it has also contributed

greatly to the conceptual development of knowledge-sharing research, for example, by introducing some important concepts such as knowledge stickiness (Li & Hsieh, 2009) and absorptive capacity (Zahra & Geroge, 2002).

However, at the individual level of knowledge-sharing research, the unit of analysis is the individual. Knowledge sharing as a behavior is influenced by various known, unknown, micro- and macro-level factors relevant to the individual and the organization (Chen & Hung, 2010; Widen, 2007). Behavior can be rational or irrational, learned or intuitive and can influence and be influenced by the individuals who perform it and by the environment in which it is performed. It is this complexity of behavior that drives research on interpersonal knowledge sharing. All bigger units such as organizations, subsidiaries, departments or teams are composed of individuals who make decisions and undertake actions, therefore, a deep understanding of organizational knowledge sharing requires a focus on the individual (Mäkelä, 2006). According to Ipe (2003), individual-level knowledge sharing is extremely important because findings derived from this level have the potential to be applicable at higher levels. In other words, by putting the individual under the microscope, we get the opportunity to better understand individual-level dynamics that are also relevant for knowledge sharing between bigger units. In this study, an individual-level perspective is adopted; thus, focus is on knowledge sharing between individuals in an organization regardless of their location and departmental association. This kind of knowledge sharing is called here interpersonal knowledge sharing.

Antecedents of interpersonal knowledge sharing

According to Ipe (2003), knowledge sharing is the act of making knowledge available to others so that it can be understood and absorbed. Davenport (1997) differentiates between reporting and sharing. Reporting involves exchange of information based on clear guidelines and predefined procedures and line of communication (Ipe, 2003). Contrarily, sharing is mostly a voluntary, although conscious activity. Hansen et al. (1999) posit that knowledge sharing in organizations happens mostly informally without any predefined procedural rules. This voluntary and informal nature of interpersonal knowledge sharing makes it vulnerable to many individual-level and environmental factors. Because it is not compulsory to share knowledge with others, employees can hide what they know or even refuse to share it with others in an organization (Connely et al., 2012). Therefore, it is extremely important for an organization to create an environment that motivates its employees to share their knowledge with each other.

As concerns the study of interpersonal knowledge sharing in organizations, most of the previous research has focused on the antecedents of knowledge sharing. A plethora of research has been conducted to comprehend what supports or hinders knowledge sharing between employees (Hoof & Weenen, 2004; Lavanya, 2012; Zboralski, 2009). Wang and Noe (2010) divide influential factors on knowledge sharing into three categories: environmental, individual

and motivational. These factors directly and indirectly influence various aspects of interpersonal knowledge sharing. A brief overview of these factors is presented below.

One of the most important environmental factors is organizational culture. Knowledge management initiatives will fall short of expectations if organizational culture is not aligned with knowledge management objectives. Culture as "a set of basic assumptions" lays the ground rules for appropriate behavior in knowledge sharing (Ipe, 2003). An organizational culture based on sharing, support, reward and trust principles motivates employees to engage in knowledge-sharing activities (Wang & Noe, 2010). Whereas an organizational culture that favours internal competition and establishes strict vertical hierarchical boundaries hinders knowledge flow within an organization (Alawi, Marzooqi & Mohammed, 2007; Ipe, 2003).

Another important environmental factor is employees' national culture. Today organizations are becoming increasingly multicultural, both in terms of business operations and workforce. Different cultural values pose a serious challenge to knowledge sharing between employees, sometimes leading to the adjustment of organizational policies according to employees' national culture. An example of this can be found in Siemens, which has adjusted its incentives for knowledge sharing in its Indian and Chinese subunits to adapt to local subsidiary needs (Voelpel et al., 2005). National cultures can vary in several ways. In this regard, Geert Hofstede's research has been used to study the influence of different dimensions of national culture on knowledge sharing between individuals (e.g. Michailova & Hutchings, 2006; Jiacheng, Lu & Francesco, 2010). Other environmental factors that have been found to be important for knowledge sharing include management support, organizational structure and reward system (Bock et al., 2005).

Besides environmental factors, employees' personal characteristics also influence knowledge sharing in various ways. Cabrera et al. (2006) found that self-efficacy and commitment to an organization influence knowledge sharing positively. Employees who are proactive and have a high level of self-esteem are usually more confident about the value of their knowledge and their ability to share that knowledge. Lack of trust in one's ability and fear of negative evaluation, however, restrain employees from knowledge sharing (Bordia et al., 2006). The level of organizational commitment has also been found to influence interpersonal knowledge sharing.

Personality traits are also important for knowledge sharing. Employees who are open to new experiences, dutiful, helping and achievement-oriented usually engage in cooperative behavior such as knowledge sharing (Matzler et al, 2008). Such employees are self-motivated and sees the benefits of knowledge sharing for themselves and others. Employees' capability to use IT tools and information management systems deployed in an organization also plays a critical role in defining knowledge flows across an organization (Jarvenpaa & Staples, 2000).

Wang and Noe (2010) describe the importance of motivation in knowledge sharing, which is a complex phenomenon that cannot be associated solely with individual or environmental factors. Sharing knowledge is sometimes seen as a time-consuming activity (Davenport & Prusak, 1998). In addition, knowledge sharing is perceived as extra work, and people's tendency to avoid excess work is well known (Vuori & Okkonen, 2012). Therefore, motivation is extremely important for promoting knowledge sharing at the individual level. Organizations that provide monetary rewards to encourage knowledge sharing between employees experience an increase in this activity (Hansen et al., 1999). Motivation can also be non-monetary, such that its immediate value cannot be measured in terms of money (e.g., recognition, increased credibility, reciprocal benefits, avoiding isolation). A study by Burgess (2005) showed that employees spent more time on knowledge sharing when they perceived that their efforts would be rewarded by the organization in terms of favorable transfers, positive evaluations, recognition by superiors and acknowledgment of their contributions in future work tasks. Oh (2012) found that altruism and enjoyment were important intrinsic motivations for knowledge sharing in online environments. Knowledge ownership and trust also act as motivating factors in knowledge sharing. Employees who perceive knowledge as their own, but not of the organization, are highly motivated to share it with others (Constant et al., 1994). Similarly, employees who trust their colleagues are more likely to be part of knowledge-sharing activities (Butler, 1999).

The tendency to investigate factors influencing knowledge sharing points to the fact that it has been studied mostly at the general level in previous research. Therefore, the focus has been more on knowledge-sharing antecedents rather than on the actual act or process of knowledge sharing. There is no doubt that antecedents of knowledge sharing are of great value; organizations can enhance knowledge sharing between employees by influencing these antecedents. However, it is equally important to analyze the act or process of knowledge sharing, which is the knowledge-sharing interaction itself. Analyzing knowledge-sharing interaction concerns questions such as what happens during the knowledge-sharing process, what kind of interaction strategies are used to share knowledge and how knowledge-sharing participants manage the dialogue to make knowledge sharing easier. Knowledge sharing is a collaborative and sense-making process in which a sender attempts to translate his insights, intuitions, experiences and context into a language understandable to the receiver. To achieve this purpose, a myriad of "didactic tricks" and "speech acts" is required (Eppler, 2007).

Some previous studies have tried to direct our attention to the knowledge-sharing interaction; however, not specifically using this term (e.g. Eppler, 2007; Bischof & Eppler, 2011). There is scant research on this topic. Eppler (2007) underlines the importance of a collaborative and interactive style of knowledge-sharing participants and introduces the concept of knowledge dialogue. He explains the critical role of knowledge dialogue in developing understanding between experts and decision makers. With the focus on

knowledge-sharing interaction, he also introduces the concept of clarity (Bischof & Eppler, 2011). He insists on the importance of systematically managing clarity in knowledge sharing to avoid confusion and misunderstandings, particularly in the context of tacit knowledge sharing.

There is also some research work conducted on knowledge sharing as a storytelling interaction (Dalkir, 2007; Mitchel, 2005). Studies conducted with this specific approach strongly emphasize the importance of stories as useful cooperative discussions to share knowledge (Tobin & Snyman, 2008; Lee, Simmons & Drueen, 2005). These studies also point out some techniques that can be used to share knowledge more effectively; for example, how to design and select particular moments of the story, and how to listen so that shared knowledge can be absorbed (Sole & Wilson, 2002).

Both Eppler's work and that of storytelling researchers, in one way or another, focus on knowledge-sharing interaction. In this study, I focus on knowledge-sharing interaction while studying how it is influenced by language practices. Because language is an integral part of knowledge-sharing interaction, it is very important to understand how different types of language practices influence this process. For this purpose, multilingual environments provide a suitable context. Language practices will be evident in multilingual environments as employees try to overcome linguistic differences while sharing their knowledge with each other.

2.1.3. Informal knowledge networks

Informal network is a broad term that goes by many names, such as social network, personal network, informal organization and emergent network (e.g., Allen, James, & Gamlen, 2007; Bryan, Matson, & Weiss, 2007; Ibarra, 1993; Kilduff & Tsai, 2003). Ibarra (1993, p.58) defines informal network as "discretionary patterns of interaction, where the content of relationships may be work related, social, or a combination of both". According to Allen and colleagues (2007, p.181), informal social networks are "unsanctioned and ungoverned organic structures connecting a potentially unbounded group of individuals". In organizations, informal networks provide an important mechanism for knowledge sharing between individuals. Such networks are very dynamic and operate under the radar, beyond the direct influence of organizational management. It is well established that the structure and existence of informal knowledge-sharing links have serious repercussions for the success of an organization (Hansen et al., 1999; Kilduff, 2003).

It is important to differentiate between formal and informal networks. A formal network is not only a formal organizational hierarchy, but also includes all network initiatives that are assigned with predefined tasks and responsibilities by the organization. In other words, formal networks are goal-directed networks where activities and relationships are mandated by the organization (Ibarra, 1993). For example, ICI, a British multinational company, has three different formal networks (mega-themes, expert groups and expert

networks) developed with the purpose of knowledge exchange between employees in various units (Allen et al., 2007). These are formal networks because they are subject to organizational tasks and management influence. This is what differentiates formal networks from informal ones that emerge out of voluntary social bonding and are usually invisible to management (Salancik & Burt, 1995, p.346).

The role of informal networks in knowledge management is crucial, and, for many years, knowledge management literature has emphasized their virtues (Dalkir & Liebowitz, 2011; Freeman, 1991; Granovetter, 1973; Hansen et al., 1999). Such networks are important media for informal knowledge sharing at the individual level, and by providing the basic structure for information flow, they add considerable value to organizations' formal knowledge management efforts (Conway & Sligar, 2002). Today, organizations' growth is increasingly dependent on knowledge creation and diffusion, which is attained through collaborative work for which informal relations add value in a number of ways, for example, by minimizing knowledge search and exchange costs (Bryan et al., 2007; Phelps, Heidl, & Wadhwa, 2012). Knowledge workers rely on their contacts for acquiring relevant knowledge and information critical for solving important problems for which there is usually no ready-made solution available in organizational knowledge repositories (Fliaster & Spiess, 2008).

In recent years, interest in informal networks within knowledge management research has increased considerably (e.g. Appleyard, 1996; Bell & Zaheer, 2007; Cummings, 2004; Hansen, Mors, & Lovas, 2005; Heizmann, 2011; Tsai, 2002). This growing body of research focuses on how networks are used for knowledge sharing in an organization (Borgatti & Cross, 2003; Hansen et al., 2005). Previous research has approached informal networks at three different levels of analysis: interpersonal (individual relations), intra-organizational (unit-level relations) and inter-organizational (organization-level relations). The main difference between these three types of networks lies in the unit of analysis. In this study, I will focus on interpersonal networks since they align with the aim of the research question that is to explore interpersonal knowledge sharing.

In previous literature, studies on knowledge sharing and informal networks have focused mainly on the comparison between networks and on the structural properties of networks. In the following discussion, I will elaborate on these two topics and position this study accordingly.

Network comparison

Comparing an informal network with a formal organization has been a recurrent topic of interest in knowledge management research. Overall, the comparative approach has been useful in shedding light on the differences between formal and informal networks in terms of knowledge-sharing intensity and practices. Below, I review some of the studies that have used a comparative approach.

Behrend and Erwee (2009) explored informal information and knowledge sharing in six virtual teams. They observed network ties of team members to determine information flows within teams. According to their findings, informal communication links are a much better predictor of how information and knowledge flow as compared to teams' formal communication structures. Informal networks showed the true social relationships and dynamics of organizational work. Moreover, the authors found that team members preferred to search for knowledge within their informal networks rather than from organizational knowledge management systems. These findings align with the views of Bryan and colleagues (2007) who posit that it is in these informal networks where most of the day-to-day work is done, through intuition and personal links. Knowledge-intensive work is usually conducted in ways different from those organizational official charts and formal procedures dictate (Brown & Duguiid, 2001). Krackhardt and Hanson (1993) consider informal networks the nervous system of an organization through which information flows diagonally and elliptically supporting its skeleton, which is the organization's formal structure.

Cross and colleagues (2001) conducted social network analysis in a group of Fortune 500 companies to assess the characteristics of social-network-based knowledge sharing between managers. They found that the most important information resource was people, followed by organizational archives and the Internet. Managers turned to other sources only when they were unable to secure information through their social relations. Moreover, they noticed that most senior managers were on the boundaries of the informal networks, whereas middle- and low-level managers were at the center of them. It represented an inverted picture of the organizational formal structure. They assert that as managers move up in the organizational hierarchy, they become isolated from employees' social circles due to their external management orientation, less socialization and preoccupation with managerial tasks. However, Skerlavaj and colleagues (2010) obtained opposite empirical findings showing that individuals at higher levels of the organizational hierarchy occupy central positions in organizational personal networks. They also found that geographical distance was an important indicator of the direction of informal relations. People in the production department, who was geographically distant from the central organization, had only a few connections to other departments. Serendipity is an important aspect of network creation and physical distance may decrease the chances of serendipitous encounters, resulting in less probability of socialization.

Chen and Krauskopf (2013) conducted a study comparing formal and informal networks in a somewhat different scenario: a merger between two nonprofit organizations. They used social network analysis to compare five different types of individual-level networks in a post-merger organization. Mergers and acquisitions have become more common in today's competitive business environment. Benefiting from others' knowledge and expertise is usually the prime purpose of mergers. However, in practice, knowledge sharing

between personnel of merged organizations is a daunting task because employees may stick to their old patterns of communication and knowledge sharing. This attitude was apparent in their findings that explicitly show that even after eight months, employees continued to be highly connected to those with whom they worked prior to the merger. New connections between merged organizations failed to flourish. Seeking knowledge for problem solving and mentoring was higher within acquirer and acquiree units than between them. In previous literature, social relations are sometimes analogized to knowledge funnels (Lin & Huang, 2008). Therefore, the tendency to stick to old connections can result in knowledge redundancy.

In recent times, organizations have become open to the strategy of managing knowledge by supporting connections between employees. However, such type of strategy is not always successful. Allen et al. (2007) conducted a study comparing formal and informal knowledge-sharing networks in a multinational organization headquartered in the United Kingdom. The company had four units situated in different geographical locations. In order to ensure inter-unit knowledge sharing, the organization introduced formal knowledge-sharing networks comprised of employees from all four units. By using social network analysis, they found that knowledge sharing between employees of these units was very different from that in the formal knowledge-sharing network established by the company. The four units had strong links with the company's headquarters, but the connections between units were very limited and weak. Furthermore, the actual route of knowledge sharing was entirely different from the intended route. This was against managers' expectations, who thought that the establishment of a formal knowledge network would suffice to build the necessary links between personnel from various units. Although formal knowledge-sharing mechanisms look nice on paper, they do not always live up to the expectations. Building upon their findings, Allen and colleagues (2007) proposed that for developing an effective knowledge-sharing network, organizations should try to understand informal networks and their characteristics, which can provide useful information for devising formal networks at the organizational level.

Structural properties of knowledge-sharing networks

Another trend in research on knowledge-sharing networks is to analyze the influence of network properties and structure on knowledge sharing (Salancik & Burt, 1995). Structural analysis of knowledge-sharing networks provides useful information for understanding their functions and implications for knowledge management. Different network structure concepts, such as density, cohesion, range, structural holes and strength of ties, shed light on various aspects and combinations of relationships, and their influence on organizational knowledge flow.

In order to study the effect of a network on knowledge sharing, Reagans and McEvily (2003) operationalized network cohesion and range to explore knowledge-sharing activities of individuals in a contract R&D firm in the United

States. Cohesion refers to the strength of interconnectedness between third parties, for example, connections between friends of friends. Furthermore, range describes the extent to which relationships span across the boundaries of teams, departments and organizations. The authors found that both cohesion and range have positive effects on knowledge sharing. The possible explanation for the positive effect of cohesion is based on the assumption that when two contacts of a person have a strong relation between them, knowledge sharing is more likely to occur, even if it is sometimes against the interest of the distributor. Cohesive relationships play an important role in suppressing individual interests by decreasing competition between different parties and encouraging cooperative behavior (Kilduff & Tsai, 2003; Krackhardt, 1999), which have positive implications for knowledge sharing. Similarly, range also has a positive impact on knowledge sharing because it increases one's ability to communicate complex ideas. Individuals whose contacts range across boundaries are exposed to various kinds of knowledge, which equips them to understand the complexities involved in knowledge sharing. Both concepts are usually seen in opposition to each other because if cohesion increases, range frequently decreases. According to previous research, network cohesion and range both have some advantages and disadvantages for knowledge sharing. Cohesive relationships tend to create homogenous networks that entail the problem of redundancy, which means that the same kind of information is shared over and over again (McDonald & Westphal, 2003). At the same time, strong cohesive relationships are good mechanisms for sharing complex and tacit information that requires great understanding and commitment (Phelps et al., 2012). In the case of network range, across-boundary contacts are usually considered rich sources of novel information (Nerkar & Parchuri, 2005). Nevertheless, such relationships can be problematic for complex and highly tacit knowledge sharing due to relations' diluted strength caused by the breadth of the relations network. Reagans and McEvily (2003) argue that both diversity in contacts and cohesive relationships are important; a balanced combination of these two features has a positive effect on knowledge sharing in a network.

Morrison, (2002) investigated how new employees' emerging information network influences their access to organization-related (larger context), job-related (how to perform a job) and role-related (responsibilities and constraints) information in the organization. They measured network effect by using structural measures of network size and density. According to their findings, network size has a positive effect on individuals' organization-related general knowledge. In other words, a large number of contacts translates into diverse and rich information about organizational functions. In comparison, individuals with dense networks have more job- and role-related knowledge because dense relations, due to their closeness, provide intensive and interactive knowledge-sharing possibilities. In short, network size and density contribute positively to enhancing new employees' knowledge about their work by enhancing the flow of different kinds of information.

In an empirical study, Burton et al. (2012) assessed the impact of employees' social network centrality and constraints on their performance in a big defense company. Centrality refers to the number of network ties and constraint measures the number of redundant contacts in a network. In this study, knowledge sharing was associated with performance, based on the assumption that changes in knowledge sharing caused by network structure would affect performance. In previous literature, it has been assumed that central actors in a network have an advantageous position because they have access to an extensive amount of knowledge through their vast number of contacts (Hossain, 2009; Sparrow et al., 2001). However, their findings show that central position is not useful for accessing valuable information and achieving high performance unless there are a number of diverse weak ties in the individual's network. High centrality with redundant strong ties gives access only to redundant information that may not be useful for solving complex problems, thus resulting in poorer performance. Moreover, the authors assert that diverse weak ties are useful for performance improvement because such ties provide access to novel information. There is a common understanding regarding the relationship between knowledge sharing and tie strength that indicates that strong ties, characterized by high communication frequency and duration, are useful for rapid and complex knowledge diffusion, whereas weak ties, a measure of distant but connected relations, are better for accessing novel and highly valuable knowledge (Phelps et al., 2012). These two concepts, which are important structural measures of network relations, have been used quite often in knowledge management studies (e.g. Fliaster & Spiess, 2008; Hansen, 1999; Levin & Cross, 2004; Tortoriello, Reagans, & McEvily, 2012).

There are two main deficiencies, however, in knowledge sharing and networks research. First, network comparison has been mostly conducted in the context of formal (organizational hierarchy) and informal (personal) networks. There has rarely been any study that makes a comparison between different types of informal networks. Such comparison is important because it can explain the implications of having a specific type of network.

Second, as shown in above-reviewed studies, there has been more interest in the structure of networks than in their development (Kilduff & Tsai, 2003). Although structural analysis of a network provides insights into the state of the network and its implications for knowledge flow, structural measures do not provide answers about "formation, reproduction and transformations of the networks themselves" (Emirbayer & Goodwin, 1994:1413). For example, we know that structural holes have important implications for knowledge sharing. Presence of structural holes can distort knowledge flow in an informal network leading to negative consequences in terms of employees' performance. Knowledge network studies can inform about the state of structural holes; where they are and how they are affecting information dissemination. However, we know little about how individual experiences make structural holes appear/disappear, why certain individuals are better able to exploit

structural holes than others (see Salancik & Burt, 1995), and how others' perception or knowledge of the structural holes influence knowledge flow to existing brokers connecting clusters (Ibarra, Kilduff, & Tsai, 2005).

In this study, while focusing on the influence of language on knowledge sharing, I also analyze the development of employees' informal knowledge networks and compare them, focusing on multilingual and monolingual knowledge networks.

2.2. Language

This section introduces language-related concepts from linguistics under two major topics. The first topic is *linguistic association,* in which the concept of language ideology from linguistic anthropology is presented. The second topic is *linguistic practices,* which is subdivided into two types of linguistic practices: code-switching and convergence. In the following discussion, I explain the selection of these two topics.

There are two major aspects of language: functional and symbolic (Edwards, 2009). In any kind of a context, whether society at large or societal institutions such as workplaces, language provides a basic medium of interaction used by its speakers to exchange messages with each other. Interactions, whether as simple as telling a joke to a friend or as complex as discussing the development of an elaborate process, depend on a common language. In this sense, language is an enabler of communication (Wardaugh, 2009). It offers a communication system composed of a vast inventory of words and definite rules that can be used to meet various situational demands (Giles & Coupland, 1991). This is called the functional aspect of language, which lets us convey messages both in verbal and written form. Consequently, how language is used in an interaction is of great importance for its purpose and success.

According to Fishman (1972), language does not only convey content, but it is content in itself. This underlines the symbolic aspect of language. Language tells us something about individuals; who they are, where they come from, and what kind of people they might be (Llamas & Watt, 2009). This aspect emphasizes the connection between language and larger social constructs such as identity, power, nationalism and politics (Bourdieu, 1991; Trudgill, 2000). In multilingual contexts, language symbolism is quite evident because individuals from different speech communities tend to differentiate between themselves in terms of linguistic associations (Irvine & Gal, 2000).

Linguistic practices and linguistic association represent the functional and symbolic aspects of language, respectively. In this study, I focus on both concepts because this allows me to investigate the influence of language on knowledge sharing in a holistic way. This is in accordance with the suggestion by Schomaker and Zaheer (2014), who propose to differentiate between symbolic and functional aspects of language while studying its influence on knowledge sharing. Another reason to study these two concepts is their potential to influence knowledge sharing. Linguistic association strongly

influences socialization patterns, and therefore, can influence the development of knowledge networks and knowledge flow. Moreover, linguistic practices play an important role in successful knowledge sharing. Linguistic differences trigger variations in linguistic practices (Giles & Coupland, 1991). Developing an understanding of such variations and their consequences on knowledge sharing between linguistically diverse individuals requires a focus on linguistic practices. These connections will be more evident, as I explain these concepts in the following section as well as in the next chapter on framework development.

2.2.1. Linguistic association

Linguistic association refers to a sense of belonging to a speech community or a group of people due to a common native language (Bryman, 2006; Edwards, 2009). It is a generic term that represents relational characteristics of language, such as linguistic identity and power. According to Jesperson (1946), language is used to hide thoughts. This is contrary to the fact that language is known as a medium to convey and express thoughts. What is meant here, according to Edwards (2009), is that language conceals the inner life of a speech community, its dreams, culture and all those values and stories that bind that community together. However, does the acquisition of language competency by an outsider provide access to the internal life of that community? Edwards (2009) suggests that the answer is simply no, as echoed in a well-known quote, "translation is treason". It further inflames the community members' desire to protect their uniqueness and internal bond, and to differentiate themselves from the so-called linguistic intruders.

What the above discussion underlines is that language possesses an indexical relationship with identity. It is an "emblem of groupness" and a source of historical and cultural association with its society and people (Edwards, 2009). Linguistic association is an important factor for understanding how people think and how they behave with speakers of other languages, particularly in multilingual contexts that constitute a ground ripe for frictions and differentiation (Blackledge, 2004). Therefore, linguistic association has consequences for knowledge sharing, an activity largely based on collaboration and driven by relations at workplaces. Linguistic association in itself is not important, what is important is its capacity to generate certain kinds of feelings and attitudes toward a language and its speakers in a multilingual environment. This combination of feelings, attitudes and emotions is commonly known as language ideology (Kroskrity, 2004). Language ideology explains how linguistic association translates into certain types of linguistic and social behaviors. To understand the influence of linguistic association, an understanding of the concept of language ideology is extremely important because it offers answers to *whys* and *hows* regarding the relationship between linguistic association and knowledge-sharing networks.

Language ideology is such an important concept that many of the discussions regarding language dynamics in multilingual contexts, in one way or other, relate to its tenets. This concept is present in different fields of linguistics; however, it is mainly discussed in linguistic anthropology (Ahearn, 2011). In the following discussion, a brief overview of language ideology is presented to develop a better understanding of it.

Language ideology

Language ideologies are "attitudes, opinions, beliefs or theories that we all have about language" (Ahearn, 2012:20). According to Kroskrity (2004), there are five attributes of language ideology that build linguistic association to one's speech community. First, language ideologies are usually associated with the interest of certain groups to promote the use of a certain language while showing indifference toward other languages and their speakers. This initiates a language subordination process resulting in a symbolic system of language hierarchy in which some languages are superior to others. This index of hierarchy also reflects upon the speakers of those languages, particularly in multilingual sites. Second, language ideologies can be best conceived of as multiple. People are exposed to different social experiences throughout their life, which influence their language ideologies differently. One point to bear in mind, though, is that there normally is shared consensus regarding language ideological beliefs because of people's exposition to common institutions, such as educational institutions and the media. These institutions promulgate ideologies in such a way that certain beliefs become part of the public reality that, later on, transmute into common sense notions (Paffey, 2012). Third, people may have varying levels of awareness toward their own and others' language ideologies. There is always some part of language ideologies that resides beyond the reach of consciousness. It explains why we consider language-related attitudes and behavior as a natural, obvious and axiomatic truth. Fourth, language ideologies mediate between social structure and form of talk. People may iconize a person based on his style of speech or even use of a certain language. For example, speaking English with an accent generates the impression of an outsider in the United Kingdom (Lippi-Green, 2012). Fifth, language ideologies are indispensable attributes of identity construction and realization processes. Practice of language ideologies in social discourse and interactions constructs a sense of *us* against *them*.

Language ideologies and behavior

Language ideologies and sociocultural norms associated with them are part of our day-to-day communications. Language ideologies are not autonomous; they are influenced by sociopolitical factors (Seargent, 2009). Different societal dimensions such as gender, generation, education, culture and political affiliation all have something to contribute to shape our language practices. However, it is important to recognize that language ideologies are not merely cognitive perceptions of the social reality of a language unrelated to our social

behavior. As put forward by Woolard (1998, p.6), language ideology is "derived from, rooted in, reflective of, or responsive to the experience of a particular social position". Language ideologies are efficacious and they affect the enactment of our social experiences. They are more *affective* than *cognitive* as they are the organization of signifying practices (Eagleton, 1991).

There is a two-way relationship between language ideologies and behavior. This interactive relationship can be understood with Pierre Bourdieu's concept of habitus (Seargent, 2009). The phenomenon of habitus is complicated, but offers important insights into social dynamics. Habitus refers to the values, dispositions and learned behavior acquired through social experiences. From a broader perspective, it is "the way society becomes deposited in persons in the form of lasting dispositions, or trained capacities and structured propensities to think, feel and act in determinant ways, which then guide them" (Wacquant 2005: 316). Throughout our life, we come across social truths (from society's perspective) shared by our friends, family and society at large, which not only shape our ideological beliefs but ensure their enactment so that we can become part of that society. Over time, our beliefs and dispositions seemingly become natural and common sense, thus defining our expectations and driving our future actions. "Dispositions shaped by past events structure, and shape current practices and also, importantly, condition our very perceptions of these" (Bourdieu 1984: 170). In short, what was learned in the past is affirmed and reproduced through practice. Similarly, language ideologies gained through interaction with social institutions slowly become natural and so ingrained in our minds that they not only guide our linguistic behavior, but also our social behavior. Seargeant (2009) explicates this phenomenon as follows:

> With respect to language, therefore, to speak of ideologies is to say that there exist sociopolitical (that is, historically specific) conceptions of what constitutes language and of how it functions as part of social existence. These conceptions can be both implicit and explicit, but in either case they constitute a shared belief system that influences the way in which we interact with language. (p.28)

Language ideologies in multilingual contexts

Language ideologies are assumed to be in action at their best in multilingual sites. Our emotions regarding language are heightened in proximity of different languages and their speakers (Paffey, 2012). Social engagement in a multilingual environment is generally influenced by our attitudes and beliefs regarding local and foreign languages (Weber & Horner, 2012). According to Garrett (2010, p.21), language attitudes would be expected not only to "influence our reactions to other language users around us, but also to help us to anticipate others' responses to our own language use, and so influence the language choices that we make as we communicate". Language is a form of social action, and it does its social work in a number of ways, sometimes through social integration and sometimes through social stratification

(Jaworski, Coupland & Galasiński, 2004). In this context, language is greatly connected with identity building through the process of categorization. We constantly categorize other people, and language is an important constituent of this categorization process (Paffey, 2012).

One important thing regarding language is its conscious or unconscious use as frame of reference in articulating an identity of us against them (Schieffelin & Doucet, 1998). After language has been introduced "as a categorizing criterion, distinctive features other than language may be dragged in as soon as they are known, irrespective of whether in reality they play an identifying or distinguishable role" (Blommaert & Verschueren, 1998: 194). Just like a Muslim girl's veil would conjure up a number of stereotypes in a western society, linguistic differences are also interpreted on the basis of certain social associations and stereotypes attached to them (Woolard, 2008); "If you are a speaker of X, you must be an X sort of a person" (Blackledge, 2000, p.27), a notion that summarizes the relationship between language and social features like identity. How people view and value their and others' language define dichotomous boundaries between *them* and *us*, and, ultimately, their social behavior within and across those boundaries. Our social interaction in conjunction with language differences is contingent on ideas about language, and this is what Eagleton (1991, p.19) calls the performative aspect of ideology: "ideology creates and acts in a social world while it masquerades as a description of that world" (Woolard, 1998, 11). It is this performative nature of language ideology that makes it important and relevant to multilingual organizations.

The tendency to attach symbolic meanings to certain languages is a part of language ideology that shapes our taste and, more importantly, our behavior toward a language and its users. Language symbolization is a good representation of the behavioral aspect of language ideologies. In his study of English language in Japan, Seargeant (2009) argues that the positive symbolic meaning attached to English as a global language plays a decisive role in Japanese people's linguistic behavior regarding English. According to Seargeant, Japanese's social use of English in Japan is an attempt to associate with its mother societies (USA, England, Australia, Canada), which symbolize economic advancement and modernization. Such a favorable attitude toward English suggests that in multilingual encounters, Japanese are more likely to show a positive behavior which may lead to informal relationships with native English speakers.

How we value certain languages is influential in our social engagements across different life domains such as family, friends, work and education (Ting, 2010). In organizational environments, the conception of a particular language as the dominant one, particularly in terms of power and economic opportunities, can play an important role in communication choices and relationship building. Even though many multilingual organizations have a corporate language, proficiency in a certain language (other than the corporate

language) can play an important role in career advancement and the promotion opportunities.

Elaborating on the relationship between language ideologies and linguistic differentiation, Gal and Irvine (1995, 2000) describe in their seminal work the semiotic processes through which language ideologies work in a multilingual context. These processes are iconization, fractual recursivity and erasure. Iconization is the process through which a relationship between a language and a social image is built. Linguistic practices then are seen as a reflection of certain cultural and social images that may not be true in the present reality. This precedent to iconic relationships leads to the point where we start to see the relationship as natural and true. Gal and Irvine explain this phenomenon with the example of a Hungarian village characterized by two dominant professions: craftsmanship and farming. Craftsmen used a speech style that was aesthetic and grammatically pleasant, contrary to farmers whose speech style was relatively plain and restraint. With the passage of time, these linguistic practices became iconic resulting in the association of certain speech styles with certain professions in the village. Woolard (1998) argues that this phenomenon is also prevalent in our societies; plain speech is associated with the common public and ornate speech with intellectuals and society elites. In a multilingual context, certain languages become iconic representations of social features. Hearing a language other than English in England may trigger the impression of foreignness along with the bundle of conjectures associated with it (Weber & Horner, 2012). Iconization is related to the concept of symbolization outlined above, because both create the indexical relationships of languages with certain groups and their features.

Fractual recursivity involves the "projection of an opposition, salient at some level of relationship, onto some other level" (Irvine & Gal, 2000:38). In the literature, this concept has been understood from two perspectives. First, a linguistic feature used to associate one group with a particular characteristic can be used further to associate the same group with other characteristics. In the Hungarian village example, plain language speakers—farmers—could further be characterized in terms of their economic status, education etc.

Milani (2008, p.40) observed fractual recursivity in his study of the public debate on introducing language testing for naturalization in Sweden. Textual analysis of public policy documents revealed how the iconization of foreigners with Swedish (language) deficiency was projected onto other domains (economic, social, cultural) by generating "causal relation along a chain of oppositions: (i) having/lacking the Swedish language means employment/unemployment, having/lacking authority and understanding/not understanding Swedish culture" (ibid, p.40). In this way, iconization of linguistic features continues to be projected from one level to another. A second interpretation, mostly by linguistic anthropologists, is that "the same oppositions that distinguish given groups from one another on larger scales can also be found within those groups" (Andronis, 2003, p.264). For example, Finnish- and Swedish-speaking Finns' conception of a person as an

outsider if s/he does not speak either of the two languages, can also subdivide their own camp by differentiating Finnish-speaking Finns from Swedish-speaking ones.

The third semiotic process is erasure: "the process in which ideology, in simplifying the sociolinguistic field renders some persons or activities invisible" (Gal & Irvine, 1995:974). It means that all activities and elements that do not correspond to our ideology are ignored. This is one of the most important processes, because it plays an integral role in strengthening the symbolic boundaries of groups. The Hungarian village's dichotomy of two separate groups seen as internally homogenous erased the differences within those groups in terms of wealth, education, linguistic competencies etc. The process of erasure was also noticed by Lønsmann (2014) in her study of a multilingual organization in Denmark. She explains that Danish employees blatantly presumed that all Danes in the organization were proficient in English. This supposition was influenced by their ideological belief that Danes are commonly proficient in English, she argues. This conception presented the Danes as a homogenous group within the organization, and the differences within the group, for example Danish employees at lower levels of the hierarchy who could not speak English at all, stayed inconspicuous.

According to Milroy and Milroy (1999), language is laden with prescriptive attitudes based on language ideologies. This prescription guides our behavior by suggesting to us how things should be done regarding language. Our socially influenced beliefs regarding language moderate our language behavior which, consequently, creates constraints and opportunities in terms of our capacity to build relationships. Goldstein (1997) studied the use of language by Portuguese workers on the production floor of a company in Canada. She found that Portuguese workers made a cohesive group on the production floor, and their use of Portuguese was extensive, although their company language was English. The reason was that the Portuguese language was a solidarity symbol between workers who considered themselves as a family. They were culturally expected to communicate in Portuguese within the family. While they ensured their group membership by adhering to their cultural beliefs, their social ties with English speakers were constrained. Their belief that Portuguese is the language of social identity and solidarity affected their language choice that, in turn, distanced them from English-speaking workers. Consequently, their information-sharing practices were constrained by their linguistic association.

The above discussion sheds light on the concept of language ideology, which provides an explanation of the causal mechanism underlying the influence of linguistic association on behavior. How linguistic association influences identity construction, socialization, relationships and power dynamics in multilingual contexts can be seen through the lens of language ideology. It is expected that language ideology explains the relationship between linguistic association and knowledge sharing, which is dependent on relationships and socialization at the workplace.

2.2.2. Language practices

The concept of language practices refers to the usage of language by individuals (Regan & Chasaide, 2010). Language is a very complex and orderly structure (Bennet, 1976), but the flexibility it offers in terms of usage is phenomenal. It can be used in a number of ways to create an infinite number of sentences. The same kind of information can be conveyed by using different words and in different styles. In the early 1970s, the famous linguist Joshua Fishman proposed the concept of domains. According to him, there are many domains (spheres of activity) in terms of language practices (Fishman, 1972). Language practices are likely to be different across domains such as court, church, school and work. Although Fishman's idea attracted some criticism (Wei, 1994), what is agreed by both old and recent linguists is that language practices are many and that people use language(s) in different ways.

Language practices is a broad concept; therefore, it is important to limit it in this study. There is a plethora of research in linguistics exploring language practices in different contexts, communities and even countries. The present study does not fall within linguistics. I will focus here only on two specific language practices that are relevant for knowledge sharing in multilingual contexts. These two practices are convergence and code-switching. In the following section, I will outline these practices with the intention to explain what they are, and how and why they are performed, which is important for understanding their relationship with knowledge sharing.

Convergence

Quite often we notice that salesmen tune their language style to their customers'. A salesman at an electronics store briefing an elderly customer about the features of a mobile phone can adopt a totally different language style when talking to a young customer. This variation in language reflects a strategic use of it in relation to the interlocutor. This phenomenon is known as linguistic convergence in sociolinguistics and social psychology (Giles & Coupland, 1991; Wardaugh, 2010). Thus, linguistic convergence refers to the ways in which interlocutors adjust or change their linguistic behavior to become more similar to an interacting partner. The change may be in terms of accent, speaking rate, intensity, utterance length, politeness and even of language (Pardo et al. 2012). In other words, convergence can be seen as "speakers' attempts to attune their linguistic and social behavior according to the characteristics which they believe belong to the speaker receiving their message" (Gallois & Callan, 1988:271).

In the literature, there are two conceptualizations of convergence: short term and long term (Auer, 2007). Short-term convergence, as discussed above, is making variations in language in a specific interaction between individuals. Long-term convergence refers to the linguistic change in a society in which two languages slowly start resembling each other due to prolonged contact

between them. Clearly, short-term convergence is a linguistic behavior, and therefore, relevant to this study that focuses on linguistic practices.

Convergence is a multidisciplinary concept (Kasper & Omori, 2010). Although it appears in different forms and contexts within sociolinguistics studies and textbooks (e.g. Coupland & Jaworski, 1997; Mesthrie, 2011; Wardaugh, 2010), it is not confined to this field. Indeed, it is situated at the interface of sociolinguistics, communication and social psychology (Coupland, 2010). Howard Giles and Nikolas Coupland developed this concept in their speech accommodation theory now known as communication accommodation theory (for further discussion, see Auer, Hinskens & Kerswill, 2008; Gallois, Ogay & Giles, 2005; Wardaugh, 2010).

In the following discussion, functions of convergence and how it occurs are discussed, which will be helpful in developing our understanding of its relevance for knowledge sharing in multilingual organizations.

Functions of convergence

According to previous literature, there are two main functions of language convergence (Giles & Coupland, 1991). The first function is affective, and refers to secure approval or support of others. A common example is the communication style of politicians who adopt folksy language in their public speeches (Wardaugh, 2010). The second function is known as the cognitive function and refers to individuals converging to achieve communication proficiency (Giles & Powesland, 1997). When considering listeners' requirements, speakers modify their speech to facilitate comprehension and improve communication clarity (Gallois et al., 2005).

Convergence for affection is more common in our interactions than we know. One of the strong motives of convergence is that the addressee or receiver of the message will appreciate the addressor's convergence behavior. This logic is based on the attraction paradigm—individuals value others who have similar norms and behaviors more than those who do not (Byrne, 1971). According to previous research, convergence behavior can enhance people's likability, intelligibility and perceived cooperativeness in the eyes of their interlocutors (Giles et al., 1987). Reasons to receive positive approval from other individual(s) could be many. In most interactions involving convergent behavior, at least one party has something to gain. The above-mentioned politicians example is classic in this regard. Bourdieu (1992) gives the example of a French mayor who in a public gathering uses a local language; the language that the mayor used was not usually conceived as a language for interaction on formal occasions in that town. However, his use of the local language was meant to generate the impression of closeness and to gain people's applause and favor. A modern time example can be Mark Zuckerberg who, while visiting China, gave an interview in Chinese. His move was appreciated in the Chinese media. Clearly, as CEO of Facebook, he has economic benefits to gain by developing a good image in one of the biggest economies of the world.

There have been some studies that show how affective convergence can lead to favor and economic benefit. Putman and Street (1984) found that interviewees who converge toward their interviewers are perceived as more socially attractive. As a result, their chance of being offered a job increases, particularly if social attractiveness is a valued characteristic for the job. Similarly, Buller and Auer (1988) found that people who converge more are more likely to have their requests entertained by others as compared to those who are perceived as non-convergent. Thus, convergence can be used as a strategy to build rapport and friendship that can later be used for securing information and help.

The cognitive function of convergence underlines its instrumental aspect (Gallois et al., 2005). Many interactions, particularly those of complex nature, demand clear speech and understanding between interlocutors. Variations or distance in speech styles can compromise the content of a message and can lead to misunderstandings and negative consequences. Misunderstanding-prone situations, such as discussions between interlocutors from diverse linguistic backgrounds, are those where convergence is most needed to achieve good quality interactions.

The cognitive function of convergence is most visible in interactions that are by default cooperative. Convergence for clarity is common in interactions that have a mutual goal, and attainment of that goal is highly dependent on message comprehension and clarity (Coupland & Giles, 1991). Student–teacher relationships are examples of such cooperative interactions. According to Thakerar et al. (1982), in such cooperative relationships both parties make genuine attempts to accommodate each other's language styles and differences. Hulmbauer (2009) found that in interactions where communication effectiveness—mutual intelligibility—is very important, individuals converge even if it means a compromise on language correctness and norms. According to Poulisse (1997, p.51), "speakers must strike a balance between the intelligibility of their message and the processing effort they and their listeners put into the production and reception of these messages". However, when such a balance is difficult to achieve, intelligibility becomes important. As pointed out by Hulmbauer (2009, p.254): "we do not take the right way, we just take the way we think you will understand". In short, the cognitive function of convergence is to achieve clarity, after all, the purpose of all cooperative interactions is to understand and to be understood (Adolphs, 2005).

Knowledge sharing is also a cooperative interaction, because successful knowledge exchange is the ultimate purpose of both sender and receiver (Cummings, 2004). This is the reason why two parties initiate a knowledge-sharing interaction.

Convergence to what?
An important question is to what an interactant converges. According to Giles and Coupland (1991), convergence is based on the addressee's speech

characteristics and/or personal/general characteristics such as ethnicity, religion, social class and profession. Speech distance is an explicit signal for interlocutors to consider the possibility of convergence to reduce the distance between them. However, interlocutors' social perception about each other can sometimes trigger convergence behavior even though speech does not demand such convergence (Gallois et al., 2005). For example, a nurse talking to an elderly patient slows down her speech assuming from the patient's age that s/he needs slower speech for understanding. In multilingual contexts, a native English speaker may adjust his/her speech style when s/he realizes that the other person is a non-native speaker or an immigrant. Even names can trigger convergent behavior as some names are strongly associated with certain regions, cultures, religions and nationalities (Giles & Coupland, 1991).

Someone who is part of the conversation or is nearby can also influence convergence behavior. This aspect is more clearly discussed by Bell (1984, 2001) in his model of audience design. His model is based on speech accommodation theory. He proposes that people adjust their language according to the audience. Audience does not mean only the addressee but it also includes auditors who are not directly addressed but are part of the conversation and over-hearers who are not part of the conversation but may hear it or see the message later. Bell also mentions that the length of a relationship is relevant for convergent behavior. For example, a discussion between a senior and a junior employee who do not know each other very well, will involve convergence, at least from the junior employee's part. However, as the relationship between them becomes stronger and friendlier, the level of convergence will decrease, as both will be able to understand each other in their own speech zones.

Power is a social variable that has strong consequences for speech behavior in general and convergence in particular. When there is a clear asymmetry in terms of power between two parties, the one with lower status is under pressure to converge to the other person's language (Giles & Coupland, 1991). The greater the power distance is, the more convergence from the part of the person with lower hierarchical level will be. Bell (1984) describes different situations that have built-in power asymmetries, such as service interactions and mass communication. Power dynamics are also applicable in situations where power hierarchy has been established officially, such as in organizational structures. For example, operative employees converge to foremen who, in turn, converge to senior managers in the organization (Giles & Coupland, 1991).

Convergence in organizational contexts
There are only few studies that have analyzed language convergence behavior in organizations (Ayoko et al., 2002; Bouhris, 1991; Hewet et al., 2009). Most of these studies come from disciplines such as linguistics and linguistic psychology, and they focus on language convergence particularly in the context of power asymmetry. One of the first studies in this context was conducted by

Bouhris (1991), who analyzed speech accommodation among employees in a multilingual workplace in Canada. His focus was mainly on French- and English-speaking employees. Both English and French were used officially in the organization. He found that French speakers, as a minority, were more likely to converge than English speakers in their interactions. For example, French speakers used English even with their English-speaking subordinates. English speakers, however, did not use French even with their French-speaking superiors. They concluded that convergent behavior was triggered by power dynamics in the organization where French had a low status as compared to English.

Similar findings were observed in a study by Lønsmann (2011). She found that the English-speaking head of the research department in a Danish company in Denmark allowed engineers to give presentations in Danish even though she did not understand the language at all. It was an affective convergence; the manager allowed the use of a language that would exclude her from the discussion, but she still let it happen to secure her approval and social acceptance. It shows that power is a relative concept. Power asymmetry influences convergence behavior; however, one must be careful in defining power and its source. In organizations, power is defined in terms of organizational hierarchy. However, when it comes to its influence on convergence, it is not always power as officially defined that is predominant, but also power defined by external social forces such as social majority/minority status.

In the context of power, some other studies have specifically focused on supervisor–supervisee relationships. McCroskey and Richmond (2000) found that superiors who converge to subordinates in their interactions are perceived as trustworthy and credible, and vice versa. In a similar context, a study by Willemyns et al. (2003) showed that convergence between supervisors and supervisees is a major source of trust in their relationships.

Besides the power context, convergence in organizations has been studied in different kinds of scenarios such as interactions between heterogeneous team members (Ayoko et al., 2002), conversations between male and female managers (Bogs & Giles, 1999; Baker, 1991), communication between specialist doctors in hospitals (Hewet et al., 2009) and e-mails between organizational employees (Crooks, 1997). In short, the concept of convergence has been discussed before in organizational contexts; however, we do not find any studies analyzing convergence in the context of knowledge sharing. The relevance of convergence in knowledge sharing is quite intuitive, because knowledge sharing is an interaction-based activity and language is an integral part of interactions.

Code-switching

According to Myers-Scotton (2006), multilingualism has become a natural characteristic of today's society. Although monolingualism is portrayed as a norm, for example in government policies, in practice people speak more than

one language (Mack, 1997). Multilingual people clearly outnumber monolingual people in the world. Today people are not only exposed to multilingual environments, but they contribute to the development of such environments by practicing different languages in different spheres of their lives, such as the workplace, the internet and the media. This is particularly the case in countries with a high number of immigrants or which are officially multilingual, such as Singapore, Finland and Switzerland. Now one can find multilingual people in countries that have traditionally been monolingual, such as Japan.

Multilingualism resulting in contact between speakers of different languages has different outcomes. It can result in the import or export of linguistic features from one language to another (Sankoff, 2001). It can create conflict between speakers of different languages (Nelde, 1987). It can also result in a peaceful relationship allowing speakers to use their native languages. Whatever the outcome, one thing is certain: multilingualism leads to change in linguistic behavior and practices. One such practice that is strongly associated with multilingualism is known as code-switching. Code-switching refers to the "phenomenon of switching from one language to another in the same discourse" (Numan and Carter, 2001:275). In other words, it is the "use of more than one language in the course of a single communicative episode" (Heller, 1988, p.1). Bilingual and multilingual people are known for shifting between languages during discourse. They can start with one language and shift to another during a communication episode. The extent of shift can vary; individuals can shift from language X to Y and continue their discussion in Y, or they may shift to Y every now and then. It is important to recognize that code-switching is not a random behavior. Instead, it is a well-governed linguistic strategy used to convey linguistic and social information (Grosjean, 1996; Ritchie & Bhatia, 2013; Wei, 2013).

Code-switching is one of the most studied linguistic practices. Therefore, it can be claimed as a key concept in sociolinguistics (Boztepe, 2003). Code-switching as a phenomenon attracted a great deal of attention in sociolinguistics and related fields in the 1970s. The work of John Gumperz has played a significant role in making code-switching a mainstream topic in sociolinguistics. Since his work, a plethora of research has been conducted on code-switching behavior of multilingual people in both monolingual and multilingual environments (Auer, 2013; Bailey, 2000; Heller, 1995). The focus has been particularly on understanding why people switch between languages and what they achieve with it. In the following section, I will briefly discuss some examples of previous research on code-switching. The literature on code-switching is enormous, and a comprehensive review of it is beyond the scope of this study. Thus, given that this is not a linguistics study, I will limit my discussion to the aspects of code-switching that are potentially relevant to organizational knowledge sharing. In this regard, I will focus on motivations and functions of code-switching.

Why code-switching happens?

Why do people switch between languages in their interactions? This question has been meticulously investigated in sociolinguistics and related fields. Research on factors that influence code-switching started in the early 1960s and 1970s. Over time, however, prediction and generalization of code-switching to different language communities were found to be highly difficult (Wei, 1994). As a language behavior, code-switching is very complex; there are always exceptions in it. This means that establishing a cause–effect relationship is not straightforward. Currently, it is common in sociolinguistics to study code-switching at the micro level. It is studied in interactions, turn by turn, where every turn is analyzed using, for example, recorded conversations (Auer, 1995). However, this study does not focus on code-switching in a turn-by-turn fashion; here the purpose is to analyze code-switching as a behavior without going into the details of turns in conversations. Code-switching is seen as a general linguistic behavior whose presence or absence has consequences for knowledge sharing. This can be claimed as the macro perspective of code-switching, and it has been adopted in many previous studies in education and organizational management (Ljosland, 2010; Nikko, 2007; Tenzer et al., 2013).

When the macro perspective of code-switching is adopted, literature on what influences code-switching becomes relevant. The factors that influence code-switching cannot always predict code-switching instances, as there are always exceptions, but they are relevant in many cases. In the following discussion, I will briefly outline some important studies that identify factors influencing code-switching.

As mentioned earlier, one of the first works on code-switching was conducted by John Gumperz. He did a study on language choice in a northern village in India. He observed that people who travel a lot speak more than one language and dialect (1958:669). Their exposure to multiple languages developed language practices characterized by code-switching. The language that individuals used for talking at home and with locals was different from the one they used with outsiders. One key finding of this study was that when it comes to language choice and shifting between languages in a discourse, the relationship between interlocutors is extremely important.

Gumperz continued his research on code-switching and conducted several studies in Norway and Austria. Blom and Gumperz (1972) studied language practices in a small village in Norway. In this study, they found that event and topic are important factors to understand code-switching behavior. A group of people talking about a topic can shift to another dialect or language if the topic changes. They give the example of a teacher who, while giving a formal lecture uses standard Norwegian, but during the lecture he shifts to another dialect for commenting, discussing and encouraging students to debate. This kind of shift was called situational switching, which underlines the importance of setting and context for code-switching.

Fishman (1965) also identified topic and setting along with group membership as influential variables in language choice. According to him, one

of the theoretically available languages will be used by particular interlocutors in particular kinds of occasions to discuss particular kinds of topics. Change in these parameters can result in change of language for interaction. He also introduces the construct of *domain* that refers to the sphere of activities and interactions. Domains attempt to "summate the major clusters of interactions that occur in clusters of multilingual settings and involving clusters of interlocutors" (Fishman, 1972, p.441). Domains are diverse, such as family, work and education. They can also be socio-psychologically different, such as intimate, formal/informal and intergroup domains (Fishman, 1972). Change in domain leads to the change in language. Unlike others, Fishman is not concerned with code-switching at the micro level. Rather, he attempts to discover generalizable patterns in language-shifting behavior in multilingual speech communities (Garcia et al., 2006). In a recent study, Lønsmann (2011) found that different external factors such as topic, interlocutor, situation and formality trigger code-switching.

When it comes to factors influencing code-switching, no other factor is more influential than language competency. The ability to speak different languages does not necessarily result in equal proficiency in those languages. As Klimpfinger (2009) mentions, equal competence in both languages is not required to be considered bilingual. Quite often people lack proficiency in their second and third languages as compared to their first language. This imbalance of linguistic proficiency in two languages can make them shift back and forth between languages, particularly when they struggle to maintain the conversation in the language of discussion. This was found by Lønsmann (2011), who conducted a study on language choice in a Danish multinational organization. She found that foreign employees, who were proficient in Danish, shifted to English when they had trouble explaining themselves. Quite often they would start speaking Danish, but when they were exhausted, they would simply start speaking English. Lack of vocabulary can also trigger continuous shifting between languages. For example, when Danish employees were not able to find a word in English, they would simply fill the blank with a Danish word, hoping that someone else among the interlocutors would explain it to those who do not understand Danish. Klimpfinger (2009) also found vocabulary-driven code-switching in his study on the use of English as *lingua franca*.

In the above discussion, a number of factors that can influence code-switching or can lead to code-switching have been mentioned. Recent studies have found that people may switch between languages in discourses and situations where they are not expected to do so (e.g. Tenzer et al., 2013). It has been found that people use code-switching intentionally to achieve communication and social goals in speech. This makes code-switching a strategic behavior triggered by individuals to achieve certain results. In her markedness model, Myer-Scotton (2000) proposes that code-switching decisions are based on the principle of rationality. People analyze costs and benefits, in economic and social terms, when they switch between languages.

They use code-switching to invoke certain rights and obligations and to portray themselves as they would like to be perceived. This directs our attention to the functions of code-switching—what people achieve with code-switching in their discourse. Previous research has identified many communication and social consequences of code-switching, and the following discussion will try to shed light on this stream of research.

Functions of code-switching

Gumperz (1982) proposed six functions of code-switching in conversations based on research he conducted in different countries such as India, Austria, Norway and USA. These six functions are quotation, addressee specification, interjection, reiteration, message qualification and personalization versus objectification. Quotation in code-switching refers to instances when someone else's utterance is reported in a conversation. The purpose is usually to preserve the effect of the message by reporting in the language in which it was originally said. Addressee specification in code-switching is used to direct a message to a specific person in the audience when the audience includes more than one person. Interjections are usually sentence fillers, such as saying "you know" while talking in Spanish. Reiteration, as apparent from its name is meant to use code-switching to repeat a sentence in another language to underline a point, to amplify the message or to clarify what was said. Message qualification, according to Gumperz, is the elaboration of a previous utterance in a different language. The difference between reiteration and message qualification is quite vague. Finally, the personalization versus objectification function of code-switching "signals the degree of a speaker's involvement in a message as in the case of, for example, giving one's statement more authority in a dispute through code-switching" (Boztepe, 2003, p.19).

Over the years, many other researchers have identified different functions of code-switching and the list keeps getting longer (McClure & McClure, 1988, Nishimura, 1992, Zentella, 1997). Appel and Muysken (2006) synthesize some important functions of code-switching into a list. First, the referential function in which language is used to refer to an extralinguistic reality in order to transfer information. Second, the directive function in which conventional modes of address and standard greetings from a particular language are used to ensure conversation's cooperative structure. Third is the expressive function in which code-switching is used to signal one's preference for a certain language. Fourth is the metalinguistic function in which a speaker—by code-switching—signals his knowledge of the language use and norms. Fifth is the poetic function in which words or sentences from another language are used to create a poetic or aesthetic effect or to infuse humor in the conversation. Sixth is the phatic function in which code-switching is used to create "a channel of communication and to keep the channel open, speakers make use of conventionalized openings, closing, and ways to signal turn taking and if necessary also of language forms that identify the in-group within which interaction is taking place" (Appel and Muysken, 2006, p.30).

In a recent study, Klimpfinger (2010) observes functions of code-switching in interactions between multilingual people when English is used as *lingua franca*. She confirmed that code-switching is used to direct the message to a certain person—called the addressee function by Gumperz. However, she also found that code-switching is used for introducing new ideas. Her analysis showed that subjects in her study shifted languages when they wanted to talk about a new concept or idea. It was primarily because the subject assumed that s/he will be able to communicate a new idea better in a language other than English. Another plausible explanation was that individuals are used to discussing some topics in a specific language, so for them, it was easier to contextualize the idea in that language.

The above code-switching functions are mostly of a communicative nature. However, code-switching also has social functions, such as identity construction and power exertion (Bailey, 2000). Individuals use code-switching to construct their identity, that is, to associate or dissociate themselves from certain social categories and norms (Fina, 2007). Monica Heller has done extensive work on French–English code-switching in Canada where power and identity conflicts between the Francophone and Anglophone communities are apparent. In the context of a conversation, code-switching can reveal one's identity or at least the identity that individuals would like to project. Heller (1995) mentions that there are clearly two groups in Canada. There are those who will strongly adhere to the English-/French-only rule and would like to establish an Anglophone/Francophone identity, and there are those who perceive Canada as a bilingual country where both French and English should be accommodated. Clearly, code-switching is likely to be prevalent in the second group of people who will be more open to shift between languages. Their code-switching behavior will project their image as a Canadian rather than a member of a specific ethnicity within Canada. The first group, however, can insist on establishing its identity as monolingual (French or English), and therefore, refuse to switch to the other language even if they can speak it.

According to Myer-Scotton (1993), code-switching is used to select certain rights and obligations. Every language in a certain situation comes with some expectations. There are marked (unexpected) and unmarked codes (expected). Selecting an unmarked code in a conversation will give a person the rights and obligations that are usually tied to that language. However, selection of a marked code means the individual is expecting to receive another set of rights and obligations. The author gives the example of a woman who comes to her brother's business office (Myers-Scotton, 1993:144). The sister uses their native tongue, that is, the family language to mark solidarity and to identify herself as his sister. She clearly wants to invoke the rights and obligations of a family member. However, her brother uses the official business language, which was different from their native language. This not only establishes his identity as a businessman, but also shows that his sister is being treated just

like another customer or visitor, which signals a different set of rights and obligations.

According to Heller (1995), language is related to power in two ways. First, it is part of social interactions; the way people do things and influence actions. Second, language, as mentioned by Bourdieu (1992), is a symbolic capital, which means skills in certain languages can provide power, prestige and access to valuable resources. This important relationship of power and language is also visible in code-switching. Previous research has shown that code-switching is a useful strategy to include or exclude individuals from discussions. In her study in a Danish multinational, Lønsmann (2011) found that code-switching from English to Danish was used to exclude non-Danish-speaking employees, and vice versa. This practice did not happen only in informal meetings, but also in formal contexts such as business meetings. When speakers assume that a piece of information or topic is not relevant to, for example, a non-Danish-speaker colleague, s/he will switch away from the common language - English. Lauring and Bjerregaard (2007) observed a similar behavior in a Saudi subsidiary of a Danish multinational organization. They found that Danish expatriates in the Saudi Arabian subsidiary intentionally used Danish to exclude local Saudi employees.

Exclusion was meant to conceal information and for this purpose code-switching was an effective tool. The exclusion function of code-switching is quite natural. As we know, language is symbolic capital and lack of it can make individuals more vulnerable to exclusionary practices by those who possess this capital in abundance.

What the above literature review shows is that code-switching is a natural and expected behavior in multilingual settings. As Wardaugh (2006) proposes, it is not the presence of code-switching but the absence of it that should be surprising. Many of the studies discussed above were conducted in organizational contexts. These studies show how code-switching can be used as a tool to establish identity and to create an *us versus them* distinction. At the same time, some language groups can also use code-switching to exert power and to include or exclude others from discussions. In either case, code-switching can lead to fragmentation in employee knowledge networks. Interaction is a prerequisite for developing a connection in a network. Absence of interaction due to code-switching can lead to constrained networking—individuals can network only with those who can speak the same native language. At the organizational level, this means lack of knowledge sharing between different speech communities.

Code-switching can also have positive consequences, as shown earlier in the discussion on its functions. It can be used to make interactions more concrete and understandable. Code-switching can be useful for knowledge-sharing processes because it allows the use of multiple languages. For example, it can be used to explain a critical point to a colleague who finds it difficult to follow the idea in the common corporate language—such as English—in a project

meeting. In this context, it represents an efficient use of multiple linguistic repertoires for efficient knowledge-sharing interactions.

3. Theoretical framework

As mentioned earlier, the main aim of this study is to analyze the influence of language on knowledge sharing in multilingual organizations. There are two main concepts in this topic; knowledge sharing and language. Both concepts are diverse; there are multiple ways to analyze the relationship between them. In the following discussion, I will present a framework to outline how I will analyze this relationship (see Figure 3.1 for the graphic representation of the framework).
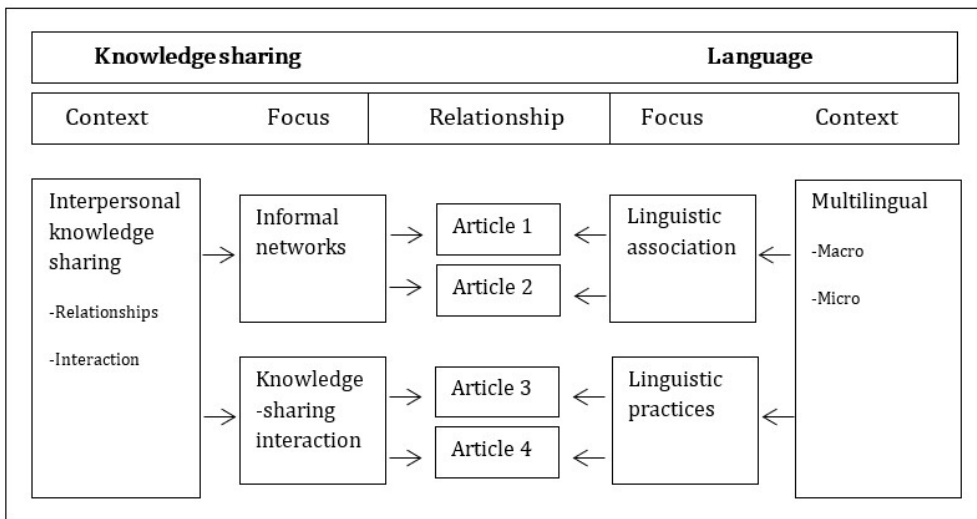
Figure 3.1. Thesis analytical framework.

A breakdown of the phenomenon of knowledge sharing, according to Mäkelä (2006), will show a number of aspects. First, there is knowledge that is being shared; second, there are two or more individuals involved; third, there is a relationship between them; fourth, there is some kind of interaction between them; and fifth, there are larger organizational and societal contexts in which knowledge sharing is taking place. It is not possible to study all these aspects together, particularly if we are interested in analyzing knowledge sharing in relation to some other factors; in this study, language. It is important to point out that sharp boundaries cannot be drawn between these aspects because they are interrelated and influenced by each other. Nevertheless, for the sake of conceptual clarity and in-depth analysis, I will focus mainly on two aspects: relationships and interaction between knowledge-sharing participants. As mentioned earlier, in any organization there are usually two main types of relationships: formal and informal. I will focus on informal relationships used for knowledge-sharing purposes. Then, in terms of interaction between knowledge-sharing participants, I will focus on the act of knowledge sharing

itself that includes the experiences of employees during the knowledge-sharing process.

The phenomenon of language is even more complex than knowledge sharing. Language can be studied in a multilingual or monolingual context. In a monolingual context, only one language is studied, and analysis can be done at the micro level, such as the structure of language, or at the macro level, such as the role of language in the development of a society. In a multilingual context, there are many languages involved and, again, analysis can be conducted at the micro or macro level. At the micro level, the main focus will be on language-usage-related issues arising out of contact between languages, such as development of creole, pidgin and language practices. At the macro level, the focus will be on the social consequences of contact between languages, such as relations, conflicts and power struggles between speakers of different languages, as well as language shifts. Linguistic association is a macro-level element of language analysis because it is mainly concerned with feelings of identity and perceived association among linguistically similar people. Linguistic practices fall under the micro-level analysis of language because they represent language use in multilingual contexts.

The relationship between language and knowledge sharing is analyzed here through four articles focusing on the relationship between linguistic association and informal networks, and linguistic practices and knowledge-sharing interactions.
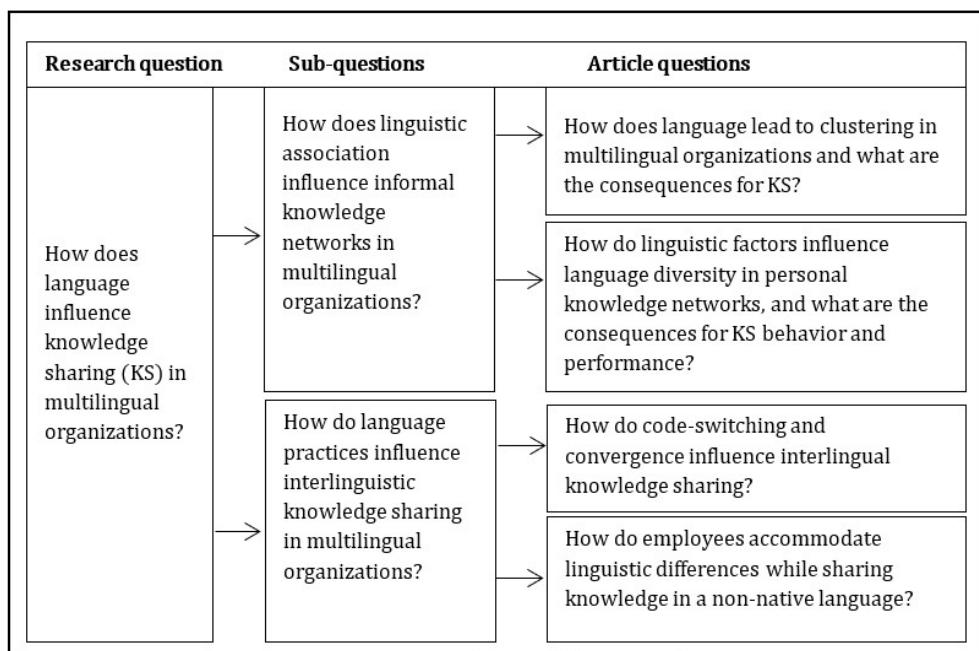

Figure 3.2. Operationalization of the research question.

The primary focus of Articles 1 and 2 is on the relationship between linguistic association and informal networks. The concept of informal networks is

operationalized in terms of language clusters in Article 1 and advice networks in Article 2. In Article 1, how linguistic association in multilingual organizations can lead to the development of language clusters is analyzed. A language cluster is an informal social network that acts as a knowledge-sharing platform and consists of people from the same speech community within an organization. This is a conceptual article that draws on linguistic anthropology to use the semiotic process of linguistic differentiation (Irvine & Gal, 2000). Article 2 presents a quantitative investigation aimed at elucidating how different language-related factors such as language diversity in a department, linguistic association and attitude toward corporate language, influence language diversity in organizational informal knowledge networks. The concept of linguistic association is represented by two variables in this article. The first is language attitude, which refers to employees' attitude toward English as the corporate language. Employees who strongly associate themselves with their native language, resist or dislike the dominance of English as the corporate language (Neeley et al., 2012). Therefore, whether their attitude toward the corporate language influenced diversity in their informal knowledge networks was analyzed. The second variable is linguistic association, which refers to employees' association with the language of the country in which their organization's headquarters are situated. Whether speakers of the parent company language (organization's country of origin's language) have more diverse informal knowledge networks as compared to those of employees who do not speak the parent company language was analyzed. Moreover, in this article, a performance comparison was made between employees with multilingual and monolingual informal knowledge networks.

Articles 3 and 4 focus on the relationship between linguistic practices and knowledge-sharing interactions. Article 3 is theoretical and draws on sociolinguistics to make propositions regarding the influence of linguistic practices, code-switching and convergence on knowledge-sharing potential and knowledge-sharing interactions in a multilingual organization. Article 4 is an extension of Article 3. By using a case study approach, it analyzes employees' convergence strategies when they share knowledge in a non-native language.

It is important to mention that the four articles are not mutually exclusive in terms of themes. Some concepts related to linguistic association and networks also appear in the articles on linguistic practices and knowledge-sharing interactions. This is mainly because, as mentioned earlier, these four concepts from language and knowledge-sharing literature are very much interrelated; it is difficult to discuss one exclusively. For example, linguistic association, although a separate concept, has direct consequences for linguistic practices. How someone feels about his linguistic identity will influence his choice and use of a language. Therefore, the discussion in one article may sometimes raise issues discussed in another article. However, as shown in Figure 3.2, each article has major theme that answers one sub-question.

4. Methodology

This chapter starts with a discussion on philosophical assumptions of research in general and this study in particular. This study's research questions are addressed by both quantitative and qualitative investigations. After the philosophical discussion, this chapter describes the processes of collection and analysis of quantitative and qualitative data in this study. Finally, the quality, reliability and validity of the quantitative and qualitative investigations are discussed.

4.1. Philosophical assumptions

There are two main methods of scientific inquiry: induction and deduction (Onwuegbuzie & Leech, 2002). Selection and application of these methods largely determine how a research contributes to the development of existing literature. An inquiry is considered deductive when a researcher hypothesizes on the basis of existing theory and then collects data to test hypotheses (Hyde, 2000). Theory comes first and it drives the whole data collection and analysis processes. Contrarily, when theory is generated from data—when the research process is not guided by previous theories—the process is known as inductive inquiry (Gummesson, 2003). Here, theory is built from scratch by analyzing data. Grounded theory building, proposed by Glaser and Strauss (1967), is a classic example of inductive inquiry.

Bryman and Bell (2011) propose that inductive and deductive approaches usually represent a general orientation to the link between theory and research rather than a strict step-by-step process. Regarding the inductive approach, there is debate as to whether a research effort can be purely inductive and not influenced by any previous theory (Bendassoli, 2013). In this sense, Miles and Huberman (1994) propose that induction and deduction are connected. The difference is only whether the initial framework was loosely or tightly grounded in previous research (Perry & Jensen, 2001).

In this study, both inductive and deductive approaches are adopted. Both approaches are used separately, but not in combination (Perry & Jensen, 2001), and are applied to address different sub-questions. However, it is important to clarify that induction and deduction are not applied in their strict sense; this investigation was neither purely inductive nor deductive. Instead, as Bryman and Bell (2013) described, this is an induction-oriented and deduction-oriented research. This study uses concepts from linguistics, thus, it cannot be purely inductive. Nevertheless, it can still be labeled induction-oriented because the role of previous literature was to provide a better understanding of the concept of language and its role in society rather than some specific guidelines and propositions. Similarly, it is not purely deductive because propositions developed and tested were not from a specific theory but built on findings from previous research conducted in the fields of knowledge

management, organizational management and linguistics. Research on language and knowledge sharing is in its initial stage, which means this is not an entirely new topic but, at the same time, it has not been studied in depth before. Therefore, the combination of both inductive and deductive approaches was useful to address the main research question from different angles. In this way, the contribution of this study to research is more holistic and balanced because it not only verifies propositions with quantitative data from previous literature, but also contributes to the development of theory by inductively generating insights from qualitative data.

In terms of epistemological considerations, deductive and inductive approaches are mainly associated with positivism and interpretivism, respectively (Hyde, 2000; McEvoy & Richards, 2006). According to Bryman and Bell (2011), positivism supports the idea of objective knowledge that can be analyzed scientifically to explain phenomena in a cause–effect manner. Moreover, it aims to find regularities that are usually context free but strongly generalizable. Interpretivism is antipositivism. It respects the differences between individuals and aims to grasp the "subjective meaning of social action" (Allan & Bryman, 2011, p.17). In other words, instead of focusing completely on the forces that constrain or enable human behavior, it understands behavior in context (Creswell, 2003). Different approaches such as phenomenology, hermeneutics and symbolic interactionism are associated with interpretivism (Mackenzie & Knipe, 2006).

This study employs both epistemological approaches but to answer different sub-questions. Overall, it can be claimed that this study is multi-paradigmatic and pragmatic (Onwuegbuzie & Leech, 2002). It is agreed that there is structure and objectivism in the real world, but at the same time, there is a need to focus on context and subjective reality to better understand phenomena. This study looks for different explanations of the potential objective reality. The present view is close to that of realism in that it accepts some features of both positivism and interpretivism (Bryman & Bell, 2013). Realism believes in finding the "family of answers" that covers different aspects of a phenomenon (Sobh & Perry, 2006 p.1200). This means reality exists somewhere out there, however, it is probabilistically apprehensible (Merriam, 1988). Moreover, due to contextual complexity, there could be different explanations to such reality. However, this study can be considered close to realism only at a broad level—at the level of the main research question. The main research question in this study is to understand the relationship between language and knowledge sharing in multilingual organizations. This research is realist in the sense that it attempts to provide different explanations of this relationship through quantitative and qualitative investigations. It is this multiple-methods approach for seeking various explanations of this relationship that brings this study closer to the realist perspective (Paavilainen, 2009). Moreover, case study research is also thought to align well with the realist philosophy (Healy & Perry, 2000).

It is important to underline that there is a difference between a mixed-method and a multiple-method approach. According to Paavilainen (2009, p.94), in a multiple-method approach "quantitative and qualitative methods form independent parts of a study while still solving together the overall research problem, whereas in a mixed-method approach qualitative and quantitative methods are used in an intertwined and inseparable fashion to solve the research problem". This research uses a multiple-method approach because it does not integrate these two methods to solve the main research question; contrarily, it uses them separately to answer different sub-questions that together form the main research question—the influence of language on knowledge sharing.

The research question of this study is addressed in the four articles. The first and third articles are conceptual and do not use any kind of empirical data. However, the second and fourth articles are empirical and use quantitative and qualitative data and research methods, respectively. Empirical data were collected through a cross-sectional survey and interviews conducted in a Finnish multinational company in 2015. The use of both quantitative and qualitative research methods is a valuable strategy to address a research question comprehensively (Bryman & Bell, 2003; Birkinshaw, 2004; Creswell, 1994; Tashakkori & Teddlie, 1998). According to Creswell (2014), combining quantitative and qualitative research methods to address a larger research problem has three benefits. First, at a general level, combination of both methods can reduce the limitations arising from using one method only. Second, at a practical level, it is advantageous to have access to both quantitative and qualitative data, because insights from one type of data can be helpful in analyzing and understanding the other type of data. Third, the use of both methods can provide a broader and more rigorous understanding of the problem under investigation thanks to their diversity in perspectives and philosophical assumptions.

Both the quantitative and qualitative investigations were conducted in a large Finnish multinational company with subsidiaries in more than 70 countries. The organization has approximately 18,000 employees working in more than 200 locations. The headquarters of the organization are in Helsinki, Finland. The organization is known as a major player in the marine and energy industry. It develops different kinds of high-tech products such as turbines and power engines. Moreover, it also provides various services aimed at efficient management and maintenance of power installations. One of the major requirements of this study was to collect empirical data from an organization with a linguistically diverse workforce. This Finnish multinational fulfills this requirement. Language diversity is common in this organization. A network of subsidiaries operating in different countries has made internal expatriation and international recruitment common practices in the organization. Even its local subsidiaries have employees with linguistically diverse backgrounds. Around 40 percent of the employees in the organization's head office in Helsinki are from linguistically diverse backgrounds. Due to the high-tech

nature of its products and services, most of the organization's work is done in team projects. The composition of teams is not border-dependent; instead, most of the teams are composed of employees who have diverse backgrounds and work in different locations. Therefore, it was not difficult to find employees who had experienced language diversity dynamics. In short, it was an ideal organization for the purpose of this study. In the following discussion, data collection and analysis processes are described.

4.2. Quantitative study

A quantitative research method was employed in Article 2. The main aim of the article was to understand what leads to language diversity in personal knowledge networks, and what kinds of consequences it has for employees' knowledge-sharing behavior and performance. The survey was developed in collaboration with university researchers with expertise in knowledge sharing. Moreover, a pretest of the survey was performed to estimate the time needed to complete it. The survey was discussed with four senior officials from the organization's communication department with the objective of addressing any concerns that the organizational management could have regarding the content of the survey and to ensure that the survey questions reflected the organization's nature of work.

The questionnaire had three major sections. The first section related to respondents' demographics and job information. The second section contained questions regarding employees' personal knowledge networks. For this purpose, a name generator technique was used (Hlebec & Kogovsek, 2013); employees were asked to name people in the organization who were major sources of critical information and advice for problem solving. Respondents were allowed to name a maximum of 10 connections. Respondents were also asked to provide their connections' native languages. Answers to these questions were used to calculate participants' personal knowledge networks' language diversity. The third section contained questions regarding different language-related constructs, as well as knowledge-sharing behavior and performance. More detail regarding these constructs is presented in Article 2.

The questionnaire was distributed through the organization's intranet. The organization did not allow the questionnaire to be sent to employees individually for two reasons. First, it was not a common practice in the organization to send surveys to employees individually. The organization conducts many surveys for internal use and all these surveys are posted on the intranet. Therefore, the organization did not want to deviate from its usual survey style. Second, surveys sent individually could compromise respondents' anonymity. Therefore, the survey was posted on the organization's intranet. All employees had access to the intranet regardless of their location. The company's corporate language was English; therefore, the survey was conducted in English. The survey was available on the intranet for almost a month. During this period, the communication department advertised the

questionnaire to maximize participation. Employees were encouraged to fill in the questionnaire and inform their colleagues about it. The organization used Webropol—a commercial software—for conducting the survey. After the survey's availability period, data were handed over to the researcher in Excel format. Overall, 403 complete usable responses were received. Data was analyzed through regression and ANOVA using SPSS 23.0. Some of the respondents' characteristics are presented in the Table 4.1.

Table 4.1. Background variables

Variables		Variables	
Age	Percentage	*Gender*	Percentage
18–29	19.90	Male	64.60
30–39	39.00	Female	35.40
40–49	26.10		
50–59	13.60		
60 and above	1.50		
Years in the organization		*Hierarchical level*	
Less than 5	38.70	Top	11.30
Over 5	61.30	Middle	32.20
		Lower	56.50

4.2.1. Reliability and validity of the quantitative study

Reliability in a quantitative study is primarily related to the "issue of consistency of measures" (Bryman & Bell, 2006, p.157). It means differences between results from the same instrument on two different occasions or when applied to different individuals should be due to genuine differences in the subject matter, not due to inconsistency in the measurement scale (Oppenheim, 1992). There is not such a thing as perfect reliability. Instead, it is a matter of correlation coefficient strength; if the correlation coefficient is higher than a threshold number, a scale is usually considered reliable (Oppenheim, 1992).

There are several methods to assess the reliability of a survey. The best known methods are test–retest, internal consistency, split-half and parallel form. Among these, the first one is the most useful if applied correctly, but at the same time, the most demanding. It requires the administration of the survey in two different points in time (T1 and T2) among the same respondents. A correlation is generated between values obtained in T1 and T2. A high correlation confirms reliability. However, this method requires that respondents' circumstances do not change over time (Oppenheim, 1992;

McCrae et al., 2011). This condition can be satisfied in a laboratory setting (Frasser & Fogarty, 1989), however, in a real-world situation, stability of respondents' environment cannot be guaranteed (Bryman & Bell, 2013). The other three methods do not have this problem; however, the most commonly used is the internal consistency method, usually associated with Cronbach's alpha (John & Soto, 2007). This method is the most useful for multi-item scales, as is the case in this study. Therefore, the internal consistency method was used to establish survey reliability. Cronbach's alpha was calculated for each construct (Cronbach, 1951). Alpha for every construct was beyond the acceptable limit of .70 (Nunnally & Bernstein, 1994) (minimum value = .73, maximum value = .83). This shows that constructs used in the quantitative study were reliable.

Validity in a quantitative study means that the instrument measures what it is supposed to measure (Mäkelä, 2006; Alan & Bryman, 2011). Validity is difficult to achieve in social sciences, because researchers often measure very abstract concepts. Therefore, it is difficult to propose that a certain set of indicators is right for measuring an abstract concept (Oppenheim, 1992). Usually, highly reliable instruments are also valid but this is not always the case (Bryman & Bell, 2011). There are different types of validity that should be considered to ensure the good quality of an instrument (Oppenheim, 1992).

First is construct validity, which encourages deduction of concepts and measures from theory (Bryman and Bell, 2011). In this study, all constructs were built on previous research (Ibara, 1992; Lai, 2012; Yang & Chen, 2007; Huvila, 2010; Peluchette & Jeanquart (2000). Moreover, measures already operationalized in previous research were used as they were or with slight modifications in statements' wording. It is also possible to analyze construct validity through statistical analysis. For this purpose, construct validity is further divided into two forms known as convergent and discriminant validity (Campbell & Fiske 1959; Bagozi, Yi and Philips, 1991). Convergent validity means that a construct in a survey relates mostly to its measures, not to the measures used on other constructs. Discriminant validity means that measures should discriminate among constructs and should not cross-load (Straub, Boureu & Gaven, 2004).

Cronbach's alpha and factor analysis are useful tests to analyze convergent validity. As mentioned before, Cronbach's alpha values for all constructs were above the recommended value of .70 (Nunnally & Bernstein, 1994), which shows adequate convergent validity. Moreover, factor analysis with varimax rotation and Kaiser normalization was conducted to find loadings for each indicator on its respective construct. Loadings for all indicators were above the recommended value of .50, (Hair et al., 1998; Straub, Boureu & Gaven, 2004) which establishes convergent validity of the constructs used in the quantitative study.

Discriminant validity was analyzed using the Fornell–Larcker criterion (Fornell and Larcker, 1981). According to this criterion, discriminant validity can be assessed by comparing the square root of the average variance extracted

of each construct with the correlation among constructs (Wong, 2013). Table 4.2 provides correlation coefficients as the off-diagonal elements of the matrix and square roots of the average variance extracted values for each construct along the diagonal. Boldface values along the diagonal are greater than all respective rows and columns, which fulfills the Fornell–Larcker criterion and shows adequate discriminant validity.

Table 4.2. Discriminant validity of the constructs: Correlations between constructs

	1	2	3
Knowledge-sharing behavior	**.72**		
Language attitude	.20	**.62**	
Performance	.23	.29	**.69**

Note. Bold values represent square roots of AVEs greater than all respective rows and columns. AVEs = average variances extracted.

Another form of validity is face validity that means measures reflect the content of the concept. Face validity was established by discussing the questionnaire with senior researchers and the organization's management (Alan & Bryman, 2011). This helped to ensure that the content of the questionnaire was relevant not only to the measured concepts, but also to the organization.

4.3. Qualitative study

A case study method was employed in the qualitative investigation (Article 4). The aim of the article was to investigate what kinds of challenges employees face while sharing knowledge in a language other than their native tongue, and how they deal with them. There is not much research on knowledge sharing in a non-native-language context in the extant literature. Case study is considered a useful method for exploratory research, particularly when the phenomenon under investigation is novel (Eisenhardt, 1989; Piekkari et al., 2013). According to Yin (2014), case study is the most suitable method for *how* and *why* questions. It can also be used for *what* questions if they are exploratory in nature, for example, "what can we learn from successful entrepreneurships" (Ibid). However, if *what* questions are about measuring "how many and how much", case study is not a suitable approach. The question addressed in Article 4 has both kinds of questions, *what,* in terms of challenges, and *how*, in terms of strategies to deal with challenges. However, in this case, *what* is also of an exploratory nature because the intention was to find out challenges unknown in previous research and not to count or measure the extent of them. This kind of case study, according to Stake (1995), is an instrumental case study. In such instance, the case is used to understand a phenomenon, as opposed to intrinsic case studies, where the case is itself the focus of investigation.

Introduction of the case organization has been provided in the previous lines. Overall, 21 interviews were conducted. Interviewees were from different subsidiaries of the organization, namely Germany, Finland, Norway, Italy, Kenya, Abu Dhabi, Puerto Rico and Panama. All interviewees were from low and middle management working in different departments such as marketing, communication, product development and procurement.

Most of the interviewees were selected by the organization according to a predefined ideal-candidate criterion. A description of the ideal candidate was developed and conveyed to the organization. The most suitable interviewees for this study were those who routinely interact with colleagues from diverse linguistic and cultural backgrounds. Although this is a highly multilingual organization, there are many employees who work locally in departments with no diversity at all. Such employees, with little or no exposure to multilingualism, were not suitable candidates for interviewing. Therefore, it was a useful strategy to let the organization find the candidates whose profiles matched the criterion. All interviewees were recruited on a voluntary basis. The communication department asked the potential candidates about their interest and availability for the interview. Only those who showed interest were selected. Snowball sampling was also used to select interviewees; at the end of each interview, interviewees were asked to recommend a colleague who could provide useful insights on the research topic and who would be interested in being interviewed. Most of the interviewees recommended at least one person, and introduced me to the potential candidates. Both selection methods were useful for finding interviewees who were excellent data sources for the question under investigation.

Daily interactions with colleagues from diverse linguistic backgrounds were common among all interviewees. Most of them were involved in project teams composed of members from different units and countries. Although it was common for them to discuss matters over electronic communication media—such as e-mail and Skype—they also met in person every now and then. Interactions were face-to-face and virtual, as well as verbal and written. Many of them had international work experience gained inside and outside the organization. Some had been on expatriate assignments and others had been working in another country before joining the organization. This means some of them were exposed to multilingualism even before they started working in the organization.

Average interview time was 58 minutes (the shortest lasted 28 minutes and the longest 93 minutes). Interviews were semi-structured. An interview guide was prepared beforehand outlining major themes with some predefined open-ended questions that were meant to generate discussion rather than simple yes/no answers. Questions had enough flexibility to accommodate context, situation and work responsibilities specific to each interviewee. The interview guide had three sections. The first section contained introductory information about the purpose of the interview and questions regarding the interviewee's background, work responsibilities and projects in which s/he was involved.

Questions in the second section of the interview were about daily work routines and situations involving knowledge-sharing interactions, such as problem solving and project meetings. The aim of these questions was to identify learning situations and activities that could be characterized as knowledge sharing in the context of the interviewee's workplace. The third section contained questions regarding the influence of language diversity on these activities. The purpose of these questions was to generate discussion about language-related challenges in knowledge-sharing activities, for which interviewees were asked to provide examples from their own experience. There was a narrative question at the end of each interview where interviewees were asked to recall and describe a typical knowledge-sharing situation where language differences or similarity had led to positive or negative experiences. The purpose was to obtain some stories that could bring up some unknown or beyond conscious issues undiscussed during the interview. The detailed interview guide is provided in Appendix 1. All the interviews were audio-recorded and transcribed. NVivo 11.0 was used for transcription and data analysis.

4.3.1. Reliability and validity of the qualitative study

Reliability in qualitative research refers to the repetition of findings—the researcher obtaining the same results by repeating the process of data collection and analysis (Mäkelä, 2006). A good way to ensure reliability is to prepare a case study protocol and a database to document the whole research process (Yin, 2013). In this study, a database containing the main research question, interview questions and information about the interviewees was created. Moreover, during the interview and data analysis processes, case study notes or memos were created and saved on the database too (Corbin & Straus, 2008; Yin, 2013). In reporting the findings, quotes were used from the data to establish a link between findings and source of evidence. This also helps in establishing reliability, by showing the inferential procedure (Corden & Sainbury, 2006; Mäkelä, 2006; Spencer et al. 2003).

Construct validity refers to the identification of correct measures for the phenomenon under investigation (Mäkelä, 2006). According to Yin (2013), it is important to identify the main concept clearly, what aspect of this concept will be the focus and how it will be operationalized in empirical terms. The influence of language on knowledge sharing can be studied in a number of ways and from diverse perspectives. Therefore, in the research design of the qualitative case study, an effort was made to focus only on one aspect of the relationship. A more detailed description is given in Article 4.

Multiple sources of evidence are often used to establish construct validity in case studies. Due to the nature of the research question, it would have been ideal to conduct observations along with the interviews. However, observations were not conducted for practical reasons. Although quantitative and qualitative data—from the survey and interviews, respectively—were

collected, these two sources were not used for data triangulation because they were focused on different aspects of the main research question. The lack of data triangulation is a major limitation in the qualitative part of this study. However, an effort was made to do unit triangulation by collecting data from different employees with diverse backgrounds belonging to different subsidiaries (Piekkari, Welch & Penttinen, 2004).

Another way to establish construct validity is to assess the relevance of the questions by pretesting (Mäkelä, 2006; Yin, 2003). Interview themes, questions and concepts were discussed with a professor with expertise in knowledge-sharing research. Moreover, a pilot interview was conducted with an executive who has more than 10 years of work experience in linguistically diverse environments at Microsoft. This interview was more than 100 minutes long and was helpful in assessing the operationalization of the phenomenon under investigation.

Establishing a chain of evidence is highly recommended by Yin (2013) to ensure construct validity. Links were established between research question, interview questions and evidentiary sources in the case study through references such as quotations (from the sources of evidence).

Internal validity refers to "validity of interpretation" (Mäkelä, 2006, p.58; Mason, 2002). It is important to explain how inferences about the relationship between concepts are made. One important method to establish internal validity is to do pattern matching—to compare emerging patterns in the data (Pauwels & Matthyssen, 2004; Yin, 2003). In this study, pattern matching was employed to understand and confirm employees' emerging behaviors during knowledge sharing. Emerging patterns were consistently compared with each other. Because this was a single-case study, theoretical and literal replications were not possible as in cross-case contexts. However, within-case replication was done by first dividing the interviewees into groups based on their country of affiliation and then comparing the patterns between them. Similar patterns were found across groups that led to literal replication. At the same time, theoretical replication was also considered. If a behavior predicted from previous data analysis did not emerge, the reason was investigated. There were instances in which groups or individuals did not consider language differences as a challenge in knowledge-sharing interactions with colleagues from a specific linguistic or national background. This does not mean that language does not matter in the case of these individuals or groups; rather, challenges were not experienced due to their extensive exposure to that particular linguistic group gained through years of interaction or close linguistic proximity (such as Norwegians and Swedish-speaking Finns). Such exposure reduces differences between groups. This is theoretical replication because it explains that absence of an effect is due to absence of the cause. In other words, if linguistic differences lead to perceived challenges and language-accommodating behavior in knowledge sharing, then absence of differences (for any reason) should lead to no such perceived challenges and language-accommodating behavior.

Another way to establish internal validity is through ensuring coding consistency. A two-stage analytic coding was done as suggested by Lofland and Lofland (1994). First, NVivo coding was done on each line and, in the next step, only the codes that were found to be relevant to the main research question were analyzed and developed into themes. A consistent comparison was made between second-order codes and emerging themes to ensure validity of inference.

External validity refers to the generalizability of findings (Mäkelä, 2006; Yin, 2013). Qualitative research, unlike quantitative, does not try to achieve statistical generalization—applicability of the findings to the population represented by the sample (Yin, 2013). It is theoretical generalization that is strived for in qualitative research (Eisenhardt, 2008). This kind of generalization is also known as analytical generalization "where conclusions are seen to be generalizable in the context of a particular theoretical debate rather than being primarily concerned to extend them to a larger collectivity" (Davies, 1999, p.91). In this study, analytical generalization was achieved through detailed descriptions in the case study as well as through internal replication as discussed above. The analytical generalization that can be drawn from this qualitative study is that when knowledge-sharing participants experience discomfort regarding language differences, they will engage in different kinds of language accommodation strategies. Some of the strategies are discussed in the qualitative study, however, there is room to find more strategies or even introduce different variations in the ones discovered.

5. Findings and discussion

The main research question of this study aimed to investigate the relationship between language and knowledge sharing in multilingual organizations. To achieve this aim, two specific questions were devised. These questions were addressed through four articles presented in the second part of this study. These articles brought forward many interesting findings; a summary of them is presented in Table 5.1. The purpose of this section is to present and discuss these findings. The following discussion is divided according to two sub-questions: how does linguistic association influence informal knowledge networks in multilingual organizations and how do language practices influence interlinguistic knowledge-sharing interactions in multilingual organizations?

Table 5.1. Influence of language (diversity) on knowledge sharing

Key findings
Language generates monolingual knowledge networks (clusters) by moderating socialization patterns.
Language power hierarchy in an organization influences knowledge sharing between different language groups.
Knowledge-sharing connections with linguistically diverse individuals influence employee performance.
Convergence language practices positively influence knowledge-sharing interactions.
Knowledge-sharing interactions conducted in employees' non-native language differ from those conducted in employees' native language.
Different convergence strategies are adopted to deal with challenges posed by non-native language use during knowledge-sharing interactions.
Language has a dual impact on knowledge sharing; it affects both knowledge networking and knowledge-sharing interactions.
Language diversity can improve knowledge-sharing interactions.

5.1. Question 1: How does linguistic association influence informal knowledge networks in multilingual organizations?

Knowledge networks are important mechanisms for knowledge sharing between individuals (Freeman, 1991; Hansen et al., 1999). The composition of such networks determines knowledge-sharing patterns within an organization. Therefore, the purpose of this research question is to investigate whether language (linguistic association) has implications for knowledge-sharing networks in organizations. Based on previous research from sociolinguistics and linguistic anthropology, it was conceptualized that a potential relationship exists between linguistic association and knowledge-sharing networks. The development of knowledge networks depends on socialization patterns and power dynamics (who has the most information) prevalent in an organization (Kilduff & Tsai, 2003). The role of linguistic association in the development of

such networks is intuitive because linguistic association is known for its potential to influence socialization patterns and power dynamics in multilingual environments (Irvine & Gal, 2000; Lønsmann, 2011). The relationship between linguistic association and knowledge sharing is studied in the first two articles that together show how linguistic association does not only influence the development of knowledge networks in an organization, but also employee performance.

The first article (Ahmad & Widen, 2015)—a conceptual paper—investigates how linguistic association can lead to the development of language clusters, which are informal networks used for knowledge sharing. Language clustering in personal knowledge networks leads to sharing knowledge more with those who have similar linguistic backgrounds than with those who do not. Language clustering is one of the most common consequences of multilingual workplaces (Marschan-Piekkari, Welch, & Welch, 1999; Tange & Lauring, 2009).

The consequences of language clustering for knowledge sharing have been investigated before (Makela, Kalla, & Piekkari, 2007; Tange & Lauring, 2009). This article tried to find out why clustering happens, more specifically, why language leads to the development of language clusters. Previous research has proposed that employees' lack of proficiency in the corporate common language leads to avoidance of corporate-common-language-based interactions, which, consequently, results in language clusters (Charles, 2007; Lauring & Tange, 2010). However, this article proposes that this does not represent the whole picture. Thus, an alternative explanation based on the theory of the semiotic process of linguistic differentiation—drawing from linguistic anthropology—is provided.

The theory of the semiotic process of linguistic differentiation proposes that linguistic association has symbolic characteristics (Irvine & Gal, 2000). It is a symbol of one's identity, culture and nationality (Edwards, 2009). Therefore, linguistic association characterizes people as groups and leads to differentiation between them. This differentiation is not conscious; instead, it is an unconscious way of seeing others, which is strongly influenced by our social upbringing. By building on this theory, it is argued that language clustering happens because employees use language as a cognitive tool to make a definition of *us* and *them*. The perception that speakers of the same native language are like us in certain respects leads us to develop cognitive closeness with them while distancing from those who speak a different language. In short, language is a socially ingrained differentiating factor, and even though employees can speak the corporate common language fluently, they can fall victim to clustering behavior.

The symbolic nature of linguistic association has two important implications for knowledge sharing. First, this symbolic aspect enables us to see socialization as a mediating factor between language and knowledge sharing—one that is usually neglected in traditional approaches to language—in which language competence is seen to have direct influence on knowledge-sharing behavior (Ahmad & Widen, 2015). Hence, to understand language

effects in knowledge-sharing behavior in multilingual organizations and to develop a knowledge-sharing strategy accordingly, we should not look only at employees' language competence, but also at socialization patterns prevailing within and between language communities in a workplace (Ibid).

Second, the symbolic aspect of linguistic association underlines the hierarchical nature of language in multilingual contexts. When there is symbolism, there is hierarchy; one symbolized thing is usually superior/inferior to another. This hierarchy can be due to the amount of information available in different languages or due to the possession of valuable knowledge by a certain speech community. For example, speakers of the parent-company language usually enjoy extensive access to valuable information and knowledge due to the dominance of their speech community within high-level management (Brannen, Piekkari, & Tietze, 2014). In this context, one language group can find it tempting to interact and connect with someone who belongs to a higher or dominant-language group. This can enhance knowledge sharing between different language groups in a multilingual organization. In short, even though language diversity has differentiating consequences, it does not always lead to lack of knowledge sharing between individuals belonging to different language groups.

This article makes a critical contribution to current literature. It shows that not only linguistic competency, but also linguistic association influences the development of knowledge-sharing networks. In doing so, it underlines the social aspect of the relationship between language and knowledge sharing.

Building on the first article, the second one (Ahmad, 2017a) empirically tested the relationship between linguistic association and composition of employees' personal knowledge-sharing networks. In this article, linguistic association is defined in terms of two groups: those who speak the parent-company language and those who do not. As mentioned in the previous article, multilingual organizations have a language hierarchy. In this hierarchy, the parent-company language—the language of the country where the head office is situated—enjoys the highest status because most of the top-management employees are from that country due to ethnocentric policies and practical reasons (Brannen, Piekkari, & Tietze, 2014). Proficiency in the parent-company language represents the possibility to develop contacts with people in the head office and to get access to critical information that may not be available through formal communication channels. It can lead to access to information that is beyond one's official status, because linguistic similarity is an important factor for establishing relationships and receiving homophily-based preferential treatment (Du-Babcock & Babckok, 1996). Therefore, parent-company's language speakers will prefer to connect with each other. It was proposed that parent-company's language speakers' knowledge-sharing networks will be less diverse than those of non-native speakers of the parent-company language.

Besides linguistic association, the effect of "language diversity in an employee's respective department" and the effect of "attitude toward the

corporate language" on language diversity were also studied. Moreover, the implications of language diversity for knowledge-sharing behavior and performance were also discussed.

A sociometric questionnaire was applied to obtain information on personal knowledge networks of employees working in different subsidiaries of the organization (Ibarra, 1995). Regression analysis showed that linguistic association influences language diversity in employees' personal knowledge networks. Moreover, it was also confirmed that speakers of the parent-company language have less diverse personal knowledge networks as compared to those of non-native speakers of the parent-company language. The positive relationship of linguistic association with language diversity in knowledge networks supports the theoretical explanation about language clustering discussed in the first article.

The findings underline the hierarchical nature of language and confirm that the association with a powerful language community can influence the development of personal knowledge networks in an organization. This explanation also corresponds well with the social exchange principle of knowledge networking. This principle proposes that knowledge networking is based on cost–benefit analysis. An individual will connect and develop a relationship with another individual, if there is a clear benefit in terms of information access (Boer, 2005; Wu, Lin & Lin, 2006). For parent-company language speakers, the benefit of connecting with each other in terms of access to critical knowledge is greater than that of connecting with colleagues who are not speakers of the parent-company language.

To address the first sub-question of this study, the analysis of linguistic association was the most important. Nevertheless, as mentioned earlier, effects of language diversity in employees' departments and of attitude toward corporate language on language diversity in personal knowledge networks were also studied. Although these two factors do not directly answer the first sub-question, they align well with the main research question that aimed to analyze the influence of language on knowledge sharing in multilingual organizations. The analysis showed that attitude toward corporate language does not influence language diversity in personal knowledge networks.

However, language diversity in work departments influences language diversity in personal knowledge networks. It shows that organizational departments' linguistic composition has consequences for personal knowledge networks. This aligns well with the proximity principle of social network theory—the closer (spatially) the individuals, the likelier will be the connection between them.

How language diversity in personal knowledge networks influences employees' knowledge-sharing behavior and performance was also analyzed. Interestingly, there was no relationship between knowledge-sharing behavior (how often knowledge is shared with contacts) and language diversity in personal knowledge networks. However, it was found that employees who have multilingual knowledge-sharing networks perform better than those who

have monolingual knowledge-sharing networks. This shows that language does not only influence the development of informal knowledge networks but also has some concrete implications for employees' performance at the individual level. To the best of my knowledge, this is the first study that empirically confirms the influence of language diversity in knowledge networks on performance.

The two articles that answer the first sub-question show that there is a relationship between linguistic association and the development of knowledge networks in multilingual organizations. This clearly highlights the importance of focusing on language diversity in the development of knowledge-sharing practices in multilingual organizations. The capability of language to influence networks has implications that extend beyond organizational contexts. In a society, social networks are social structures in which individuals are embedded. The behavior of individuals is constrained by social structures (Mayhew, 1980). If characteristics of social structures change, the affordances of individuals' behavior also change. In this context, the way an individual interacts with information is also influenced by social structures that, for example, define what information sources are available.

The capability of language to influence the development of a network means it has consequences for individuals' information behavior in organizational and personal (outside work) contexts. Language defines the affordances of individuals' information world. For example, if a person speaks only Swedish, the information s/he can see, receive, analyze and utilize can be in Swedish only. All his/her information sources will be Swedish whether they are persons, documents or websites. Information available in other languages, such as English, will be filtered out automatically. Moreover, there will be a lack of diversity of informational perspectives because information in Swedish will mean information from the Swedish perspective only. In short, in the larger context, individuals' information behavior is constrained by their association with a speech community.

Ludwig Wittgenstein once said, "the limits of my language are the limits of my world", that is, I can talk about the world only to an extent that I have words for it. The same saying can also be expressed as follows: the limits of my language are the limits of my information world, that is, I can interact and use the information produced and presented in my language only. In information science, the phenomenon of language (diversity) has not attracted much attention, but the findings of this study show that language influences social structures, which underlines its capability to influence the way we interact with information as well as its importance for different information science concepts such as information behavior and information literacy.

5.2. Question 2: How do language practices influence interlinguistic knowledge-sharing interactions in multilingual organizations?

Knowledge sharing involves discussion between two or more people, for example, for problem solving, idea generation and product development (Bischof & Eppler, 2011). As knowledge sharing is an interaction-based activity, language—which is an enabler of human interaction—plays an integral part in the successful exchange of knowledge. Knowledge sharing involves a complex sense-making process in which exchange of expertise and generation of new ideas happen simultaneously. Language helps to develop and verbalize the meaning of experiences between individuals. Therefore, it is obvious that language plays an important role in knowledge sharing, particularly in knowledge-sharing interactions. The third and fourth articles explicitly outline the dynamics of this relationship.

The third article (Ahmad & Widen, 2018) introduces two language practices—code-switching and convergence—drawing from sociolinguistics, and tries to explain how these practices influence knowledge sharing between employees from diverse linguistic backgrounds. The article has two parts. The first part studies the relationship between code-switching and knowledge-sharing potential, and the second part investigates the relationship between convergence and knowledge-sharing interaction. Convergence is the concept with which the second sub-question is answered through a focus on its influence on knowledge-sharing interactions, whereas code-switching is studied in terms of its influence on knowledge-sharing potential (the possibility to share knowledge within an organization). Thus, the discussion on code-switching and knowledge-sharing potential does not answer the second sub-question per se; however, it is related to the main research question that aims to investigate the influence of language on knowledge sharing.

Code-switching refers to shifting between two languages in a conversation (Nunan & Carter, 2001). It is a very common practice in multilingual environments (Myers-Scotton, 1993; Wei, 2013). Although a common corporate language is expected to be used in multilingual organizations, employees often use other languages as well, particularly in informal situations. In this article, it is proposed that switching away from the common corporate language reduces knowledge-sharing potential in an organization. This is because switching away from the common language, particularly in the presence of multilingual employees, produces frictions and distrust among employees. It reduces social interaction and, consequently, influences knowledge-sharing potential negatively.

Convergence refers to the ways in which interlocutors adjust or change their linguistic behavior to increase similarity to their interacting partner. Changes can be in terms of accent, speaking rate, intensity, pause frequency or utterance length (Pardo, Gibbons, Suppes, & Krauss, 2012). There are two major reasons

for convergence during interactions. First, people converge because they want to achieve efficiency in interactions. By accommodating language differences, conversation quality can be enhanced. Second, people converge to enhance their attractiveness; by converging, an individual can portray him/herself as someone who is cooperative and intelligent, and has a homogenous linguistic behavior (Giles & Coupland, 1991).

In this article, it is proposed that convergence will have a positive impact on knowledge-sharing interactions between individuals from linguistically diverse backgrounds. The linguistic distance between two employees who come from dissimilar backgrounds will be reduced if both try to accommodate language differences between them. Moreover, it is proposed that when knowledge-sharing interactions occur in employees' non-native language, employees are more likely to converge as compared to when interactions occur in their native language. In other words, the feeling of dissimilarity triggers language convergence, which improves knowledge-sharing interactions.

This article links knowledge sharing with language practices; in doing so, it advances six propositions. One of the important contributions of this article is that it explains how language practices are relevant to knowledge-sharing interaction (i.e., the talk during the knowledge–sharing process). I did not find any systematic attempt to explore the relationship between language practices and knowledge-sharing interaction in previous research. After theoretically establishing a relationship between language practices and knowledge sharing, the fourth article sought to empirically analyze this relationship.

The main purpose of the fourth article (Ahmad & Widen, 2017b) was to find out what kind of convergence or accommodation strategies are used when knowledge-sharing interactions are conducted in employees' non-native language. However, before studying convergence strategies, it was also important to understand the motives behind them. Therefore, the challenges of knowledge sharing in a non-native language were also studied.

Analysis of the 21 in-depth interviews conducted in a multinational organization showed that employees experience mainly two kinds of challenges when they share knowledge in a non-native language (English). First, they experience a high level of ambiguity; they find themselves unsure whether the problems in knowledge-sharing processes are due to their colleagues' lack of topical knowledge or of language proficiency. As a result, they struggle to decide whether they should make adjustments in knowledge content or in language sophistication level. Second, knowledge sharing in a non-native language is seen as a costly activity by knowledge-sharing participants. Knowledge sharing in a non-native language is prone to misunderstandings and leads to costs not only in terms of money but also in terms of time. Misunderstandings require clarifications and further actions by knowledge-sharing participants. As a result, knowledge sharing in a non-native language becomes a drag on their daily activities.

The use of a common corporate language is meant to improve knowledge-sharing interactions (Marschan-Piekkari, *et al.,* 1999). However, it was found

that, although helpful, the common corporate language can also pose problems to knowledge sharing. This means that adoption of a common corporate language does not automatically eradicate language-diversity-related issues in knowledge-sharing transactions.

To accommodate linguistic differences, employees used different language-accommodating strategies, here called *adjustment strategies*. These strategies represent employees' convergence behavior discussed in the third article. Three adjustment strategies were found. First is the language adjustment strategy that involved mainly linguistic politeness and asking confirmatory questions. Confirmatory questions were used to avoid false understanding assumptions. Moreover, employees payed special attention to their politeness level when engaging in knowledge sharing with colleagues for whom the corporate language was not their native language. Politeness expression varies from language to language, thus, this influences how politeness is communicated in a non-native language. Adjustment in politeness is required particularly when knowledge sharing involves assertions, accusations, arguments and tough discussions, because in such discussions language differences can create serious misunderstandings and trust issues.

The second strategy found was adjustment of knowledge-sharing medium—the strategic use of knowledge-sharing medium to accommodate language differences. Different kinds of active media such as phone, Skype, face-to-face meetings, and passive media such as e-mails and sketches and drawings were used for knowledge sharing among linguistically diverse employees. What kinds of knowledge-sharing media were used was strongly influenced by knowledge-sharing participants' accent, language proficiency and past experiences of interaction with each other.

The third strategy is language adjustment, in which knowledge-sharing participants used more than one language to explain key points and to develop mutual understanding. The most interesting language adjustment strategy was knowledge translanguaging, that is, the same information was repeated in two different but common languages to help the recipient decipher the meaning and make sense of the information being communicated.

It was found that employees make changes in their language, discourse and communication medium so that knowledge sharing can be successful. There is clearly a difference between knowledge sharing in a native and in a non-native language. Findings of this article show that knowledge sharing between linguistically diverse employees involves dual translation. First is the contextualization translation that requires knowledge modification according to the recipient's context. This kind of translation happens in all types of knowledge-sharing interactions regardless of language differences and has been discussed in previous research (Seaton, 2002; Liyange et al., 2009). This study shows that there is another kind of translation on top of contextualization translation—inter-lingual translation. This translation involves reproduction of information in a language that is understood by the interlocutor. Adjustment strategies can be seen as translation activities (shown

in the interlingual translation layer in Figure 4) that knowledge-sharing participants perform during interlingual translation to deal with the extra layer of ambiguity added by the use of a non-native language.
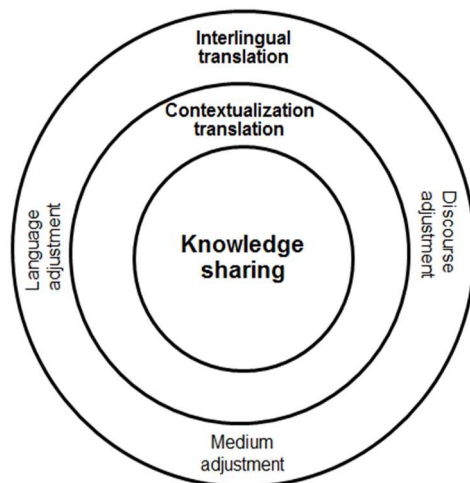
Figure 4. Dual translation in non-native knowledge sharing (taken from Ahmad, 2017).

Although previous research suggests that language can create complications in knowledge-sharing interactions (e.g. Piekkari, Welch & Welch, 2013; Tan & Gartland, 2014), this is one of the first studies to capture the complexity of this relationship through the concepts of adjustment strategies and inter-lingual translation. This represents a micro-level analysis that underlines interaction-level strategies during knowledge-sharing interaction between linguistically diverse employees.

5.3. Some common findings

Knowledge sharing in an organization depends on the connections (networks) between individuals and the successful exchange (interaction) of knowledge between them. An individual's knowledge-sharing network will be of no use if s/he is not able to successfully execute knowledge-sharing interactions. In knowledge sharing, its structural dimension—relationships—and its content dimension, which refers to communication, are both crucial (Widen & Ginman, 2004). There has been no study addressing both aspects of knowledge sharing simultaneously in previous research. The present study has addressed both in relation to language. It investigated the influence of language (linguistic association and language practices) on knowledge-sharing networks as well as on knowledge-sharing interactions. The first two articles showed that linguistic association affects the development of knowledge networks by

moderating socialization patterns and by creating language hierarchy. In other words, who knows whom, which defines knowledge-sharing patterns, depends on who speaks what (language). The third and fourth articles showed that language practices (convergence) can influence knowledge-sharing interaction, particularly when knowledge sharing occurs in a non-native language. There were two important findings of these four articles. First, language has a dual impact on knowledge sharing—it affects both knowledge networking and knowledge-sharing interactions. Second, language can have negative and positive consequences for knowledge sharing; it could be seen as a blessing in disguise. These two points are discussed below.

5.3.1. Dual impact of language on knowledge sharing

Findings from the four articles presented here clearly show that language has a dual impact on knowledge sharing. It does not only influence the development of knowledge-sharing networks, as discussed in the first two articles, but also influences knowledge-sharing processes, as shown in the third and fourth articles. This means that the relationship between language and knowledge sharing exists at different levels. Therefore, this relationship requires a multiple perspective analysis. Just like knowledge sharing, language is also a complex concept and has different facets. However, previous research has mostly taken a functionalist perspective on language while studying its relationship with knowledge sharing (Charles, 2006; Lauring & Tange, 2010). The better one speaks a common language, the better for the results of knowledge sharing with linguistically diverse individuals. There is no doubt that the capability to speak a common language influences knowledge-sharing potential as well as knowledge-sharing processes. However, the relationship is much more complex, as shown in the four articles; it is not only language competency, but also linguistic association and language practices that influence knowledge sharing.

The influence of linguistic association on knowledge networks was studied separately from the influence of language practices on knowledge-sharing interactions. In other words, the influence of language on the development of knowledge networks was studied without observing the knowledge-sharing interactions within those networks, and vice versa. This raises the question, is there a link between these two processes? Data from the articles do not allow such discussion. Nevertheless, it can be proposed that there is a link between these two processes. When language influences knowledge network development, its role in knowledge-sharing interactions also becomes evident. In other words, when one effect is in action, the other comes along with it. Individuals who socialize regardless of linguistic associations and who possess multilingual knowledge networks experience less difficulty in their knowledge-sharing interactions with others from diverse linguistic backgrounds, and vice versa. Connection with linguistically diverse individuals and socialization indifferent to language backgrounds increase one's exposure to language

diversity, which in turn, can help knowledge-sharing interactions. It develops confidence that language-related nuances and contextualization cues can be understood and hence, dealt with successfully. As a result, employees confidently engage in knowledge sharing with linguistically diverse individuals. Many interviewees highlighted the importance of exposure for developing comfort and confidence in knowledge-sharing interactions. In short, it can be proposed that the impacts of language on knowledge network development and on knowledge-sharing interactions are related and reinforce each other.

5.3.2. Language diversity: A blessing in disguise for knowledge sharing

Diversity is usually regarded as a blessing in disguise. Diverse workforces provide multiple insights and new ways of thinking that drive innovation (Cummings, 2004). This is also the case with knowledge sharing. Having people with diverse expertise, skills and backgrounds in a work environment is useful not only during knowledge-sharing processes, but also for promoting knowledge sharing due to the availability of diverse knowledge sources in an organization. Findings from the second article show that employees with multilingual knowledge-sharing networks perform better than those with monolingual networks. Since language influences thought (Wolf & Holmes, 2010), language diversity means thought diversity. This, as a result, can lead to out-of-the-box thinking and innovative solutions to problems, consequently enhancing performance. This is a very interesting finding, because it provides clear evidence of the benefits of language diversity.

Unfortunately, the relationship between language diversity and knowledge sharing has been seen mostly in negative terms in past research. There is rarely any study that emphasizes the positive implications of language diversity for knowledge sharing. In this regard, one of the most important findings of the present research, evident in the first, third and fourth articles, is that language (diversity) can also have positive consequences for knowledge sharing. As shown in the first article, language clusters, in the long run, can trigger knowledge sharing between different language groups due to the asymmetric access to information caused by language diversity. In other words, clustering itself, which is commonly thought of as a problem, can become a motivation for cooperation. This is particularly the case for those who are lower in the language hierarchy, as discussed in the third article. Moreover, the adjustment strategies found in the fourth article also hint that language differences can lead to innovative ways of knowledge-sharing interaction. Moreover, these strategies also lead to increased sensitivity to talk during knowledge-sharing processes. Such sensitivity is helpful in knowledge-sharing processes, for example, for improving understanding by using confirmatory questions. In short, heightened awareness of linguistic differences in knowledge-sharing interactions can significantly enhance their quality.

6. Contributions and implications for future research

6.1. Theoretical contributions

This study makes several theoretical contributions. First, it introduces language as one important factor with implications for knowledge sharing. It is plausible to suggest that language is a similar factor to, for instance, personality (Mooradian & Matzler, 2006; Matzler et al., 2011), organizational culture (Ismail et al., 2008, Yousuf & Mohammed) and rewards, (Bartol & Srivastava, 2002) which influence knowledge sharing. Information science, in general, recognizes the importance of language diversity, for example, for information retrieval and knowledge-system development (Luo et al, 2008; Pariyar et al., 2014; Savolainen, 2016; Kim et al., 2015). However, in the context of knowledge sharing, this is one of the first studies to investigate this relationship meticulously. By doing so, it not only underlines the importance of language diversity as a relevant concept in information science, but also makes a timely contribution to the knowledge-sharing literature. Today, multilingual workplaces have become a common phenomenon, and workplace language diversity is likely to grow. In this context, this study helps to develop a better understanding of the relationship between language diversity and knowledge sharing and sets the tone for future research by showing the complexity and multifaceted nature of this relationship.

Second, this study shows that knowledge sharing is not only about *how* (medium) knowledge is shared, *how much* it is shared and *what kind* of knowledge is shared, as found in previous research (Wang & Noe, 2010). It is also about *with whom* knowledge is shared and *how* (interaction and didactic techniques) it is shared. Ultimately, the success of knowledge sharing depends on individuals and how they interact. By introducing the concepts of knowledge-sharing interaction and adjustment strategies, this study makes a useful contribution to this critical yet understudied aspect of knowledge sharing, which is knowledge-sharing interaction.

Third, this study contributes to boundary-based knowledge-sharing research. Knowledge sharing across boundaries such as teams, departments, cultures, organizations and regions has always been a topic of interest to previous researchers and a matter of concern for organizations (Carlile, 2004; Kauppila & Rajala, 2011). The concept of boundaries is critical to knowledge-sharing research because boundaries translate into spatial and cognitive differentiation that, consequently, adds to the complexity of knowledge-sharing processes. Knowledge sharing within teams is relatively easier as compared to knowledge sharing between teams. Similarly, knowledge sharing between individuals belonging to diverse cultures is more difficult as compared to that between individuals who have the same cultural background. This study introduces language as another boundary and adds to the current

boundary-based knowledge-sharing research by showing how linguistic boundaries can influence knowledge sharing in organizations.

Fourth, this study uses theoretical and methodological triangulation by utilizing diverse theories and methods to address its main research question. Theoretically, it incorporates insights from linguistic anthropology, sociolinguistics and social network theory, and methodologically, it uses both quantitative and qualitative research methods. Insights from different disciplines complemented each other and provided a useful framework for an in-depth analysis of the main research question. In a way, this also reaffirms the interdisciplinary nature of information science. A combination of quantitative and qualitative methods, according to Birkinshaw (2004), helps in building a strong theoretical framework as well as in conducting a rigorous analysis of the research question. This study analyzed ego networks, individuals' personal networks, through regression analysis, compared performance through analysis of variance (ANOVA) and used an inductive case study to analyze complex convergence strategies in knowledge-sharing interactions.

Moreover, through two conceptual articles, new insights into the phenomenon under investigation were developed. The major strength of conceptual articles is that they are "unfettered by the data-related limitations" and, therefore, can be more innovative in terms of idea generation and theory development (Yadav, 2010, p.5). According to Yadav (2010), a conceptual article can contribute to theory development by "invoking a theory"—leveraging an existing theory to explore a new unexplained phenomenon, or by "using interrelations"—combining previously unconnected fields or bodies of knowledge. The first article invokes the theory of semiotic processes of linguistic differentiation to explain language clustering. The other article highlights the interrelationships between the concepts of code switching and convergence from sociolinguistics, and of knowledge-sharing potential and knowledge-sharing interaction from knowledge-sharing literature. By using quantitative and qualitative frameworks to address the main research question, this study answers the call by Wang and Noe (2010) who urged for methodological innovation in knowledge-sharing research, currently dominated by quantitative investigations.

6.2. Managerial implications

Findings from this study also have some practical implications. First of all, organizations should try to educate their employees. They should attempt to increase awareness of common linguistic practices to motivate employees to reflect on their language behavior and its consequences for social interaction in general and for knowledge sharing in particular. Linguistic behavior operates at the subconscious level; it may seem natural and its consequences for knowledge sharing could not be readily evident. Therefore, it is important that organizations increase their employees' awareness of language diversity

and clearly communicate the benefits of it, such as access to diverse information and enhanced performance. Language-training programs can be useful in this regard; many organizations are already using language-training programs to improve their employees' linguistic skills (Thomas, 2008). Such programs could also include modules designed to develop employees' sensibility toward language use at work. Alternatively, organizations can use existent internal communication channels such as newsletters and intranets to educate employees about the influence of language practices on knowledge networking and performance.

Knowledge management efforts in an organization should also focus on language management. A systematic approach should be adopted toward language diversity in the development of knowledge management strategies such as team composition, knowledge management systems development and knowledge-sharing culture promotion. For example, many factors are considered in the development of project teams, professional expertise being the most important one. The core motivation for devising a team is the utilization of knowledge from different individuals to help in performing a task effectively and efficiently. While devising such teams, language diversity should be considered. Would it fit the nature of the team's tasks and goals? Would it contribute to the performance of the team by providing diverse insights or would it slow it down due to linguistic and cognitive differences? In short, an explicit and conscious analysis of the potential effects of language diversity on knowledge-sharing strategies and activities should be done. If language diversity is not always bad, it is not always good either; different combinations of it could have varying implications for knowledge sharing depending on the state and purpose of the knowledge-sharing endeavor.

Many organizations conduct social network surveys to identify knowledge-sharing patterns, clusters, disconnections and experts (Bryan et al., 2007). It would be highly beneficial for organizations to collect information on their employees' linguistic backgrounds in such surveys. It would help them to identify knowledge-sharing patterns between different language communities and any discrepancies therein. This information could be used for more finely targeted interventions. For example, if an organization identifies language clustering in a knowledge network, it could trigger networking opportunities between extremely disconnected language communities if the disconnection does not lie in the group's strategic goal. However, organizations could use language clusters for projects that require speed and efficiency because, for this purpose, linguistic similarity and already established connections would positively affect task achievement.

Organizations are traditionally suggested to focus on how knowledge-sharing connections can be developed between employees (Mäkelä, 2006). However, it is equally important that they pay attention to knowledge-sharing interactions between linguistically diverse individuals. Specific training programs can be designed to develop linguistic interactive skills such as the kind of adjustment strategies found in the fourth article. Such organizational

endeavor would be helpful in reducing misunderstandings and enhancing knowledge-sharing quality between linguistically diverse individuals.

6.3. Limitations and avenues for future research

This study has some theoretical and methodological concerns that constitute avenues for future research. The first of these concerns is how knowledge networking and knowledge-sharing interaction are related to each other in multilingual organizations. In this study, these two aspects of knowledge sharing were studied separately. Although a potential relationship between these two aspects is suggested, a specific analysis with empirical data needs to be done.

Another limitation is the exclusion of two important macro environment-related factors: organizational culture and social environment. Organizational culture plays a major role in facilitating knowledge-sharing activities and has, therefore, a direct influence on employees' knowledge-sharing behavior. A cooperative culture can minimize the negative consequences of language diversity on knowledge sharing, particularly in terms of knowledge network development. The influence of language on knowledge sharing may vary from culture to culture. This topic was beyond the scope of this study; nevertheless, it would be an interesting and relevant approach for future research on knowledge sharing in multilingual organizations.

While studying the influence of language on knowledge sharing in an organization, the larger social context was not considered. The history of the relationship between languages has consequences for interaction between their speakers. Some language groups are more likely to adopt differentiating language behaviors—for example, language choice—than others, even if it leads to conflict, lack of cooperation and disconnection. This was shown in a study by Vaara et al., (2005). In a multinational organization, a past conflict between Swedish and Finnish speakers resurfaced when the organization decided to use Swedish rather than Finnish as its official corporate language. In such a context, the influence of language on knowledge sharing (network development and interaction) will be strong. Social context is highly relevant when investigating the influence of language on knowledge sharing; since this aspect was not covered in this study, future research needs to focus on it.

There are also some methodological limitations that warrant attention in future research on language and knowledge sharing. First, this study employed a multiple-method approach, not a mixed-method approach. The latter, by integrating different methodologies and types of data in one framework, has an advantage over the former in terms of findings' validity. Second, lack of ethnographic observation is an important methodological limitation of this study. Observations along with interviews can provide rich and naturally occurring data on employees' linguistic behavior during knowledge-sharing interactions. In this study, observations were not conducted due to restricted access by the case organization. Nevertheless, it is highly recommended that

future research uses observational data. Third, one aim of this study was to examine knowledge-sharing networks. A cross-sectional survey was used to map those networks; however, such a survey provides only a one-time snapshot. How language diversity evolves in personal knowledge networks can only be studied with longitudinal data. Therefore, future research should conduct longitudinal studies to analyze knowledge-sharing networks in multilingual organizations.

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