To What Extent do Informal Learning and Technology Transfer Impact Absorptive Capacity?

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Abstract

This thesis aimed to investigate the extent to which informal learning and technology transfer impact absorptive capacity and to uncover how individual social agents contribute to the development of absorptive capacity. Research on absorptive capacity has hitherto mainly focused on the use of proxies such as R&D intensity and the number of PhD holders in organizations to measure absorptive capacity. This preoccupation with proxies has retarded progress with respect to our understanding of how absorptive capacity is developed.

The literature review revealed that most previous studies employed the quantitative paradigm and failed to capture the contextual dimensions of absorptive capacity. Most studies focused mainly on organizational level aspects thereby neglecting the individual antecedents of absorptive capacity. In order to reveal aspects of absorptive capacity development that quantitative studies are unable reveal, this study employed a qualitative paradigm, based on the constructionist philosophy. The data were generated through the use of semi-structured interviews, supplemented by field notes. The data analysis drew on the grounded theory approach.

The evidence generated by this study shows that informal learning and knowledge/technology transfer impact the ability to integrate and use external knowledge through individual agency. The findings also show that individual employees rely on their cognitive resources to acquire knowledge. Further, the results suggest that working with others, interacting with them, helps with knowledge transfer and institutionalization.

The main implications of this study are that managers need to facilitate the creation of more learning opportunities in the workplace. Such learning has the potential to contribute significantly to the aspiration of creating a knowledge economy, especially in the context of Namibia. Also, organizations need to forge more links with industrial forerunners in order to learn from them and build up their own technological capabilities.
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Dedication

I dedicate this thesis to my mother, Toini David Nashidengo, a freedom fighter, who passed away while I was living in exile during the liberation struggle.
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Chapter 1

Background to the Research Problem

The last few decades have seen a major shift in what has been regarded as the main drivers of economic growth and development. This is because the resources which have once been viewed as the main engines of economic development have been pushed to the periphery of economic activities, as it were; and knowledge, which for centuries has been downplayed, has taken centre-stage. Knowledge has not only emerged as the main source of economic growth, but also as the basis for competitive advantage. In other words, it has overtaken land, financial capital, natural resources and labour in terms of significance to business organizations in particular and economies in general. The rise of knowledge to prominence is attributable to the rapid information explosion that has occurred since the 60s. Such explosion has made communication easier as people around the world are now able to communicate in real-time despite geographic distances and to exchange information. This, coupled with trade liberalization, has engendered the so-called Global Village in which world economies have become more connected and interactions between states have become more open. One direct consequence of this is the increase in economic competition which affects all nations around the world. Consequently, different countries are striving to do everything possible to counteract the onslaught of these global economic forces. For example, forward-looking nations are seeking ways to mitigate the effects of such forces which have proven to be detrimental to many economies all over the world, including the industrially advanced ones. To carve themselves a niche in the emerging economic arena and survive the competition, countries are striving very hard to bring themselves
in line with what has come to be called a knowledge economy, one in which the application of
knowledge in both the manufacturing and service sectors has become the main catalyst for
growth. Under these circumstances, technology is changing very fast and knowledge is fast
becoming obsolete. As a result, it is imperative that countries constantly generate new
knowledge to out-perform their competitors. The prevailing economic climate engendered by
cut-throat competition has compelled academics and practitioners alike, including political
leaders, to attempt to minimize the harmful effects of globalization on their economies. They are
doing this by aligning their economies with the knowledge economy for fear of being left behind
or being pushed to the periphery of the current global economic activities. Namibia like other
countries around the globe is no exception: she has not been spared by the economic forces
shaping the present economic climate and their effects.

In the context of Namibia, the effects of the above economic forces manifest themselves in
various ways. For example, at present, the country’s industrial sector is faced with a number of
challenges some of which are ascribed to globalization. As a case in point, the country is
experiencing low competitiveness, low skills levels, and low manufacturing output (Bank of
Namibia 2007). These challenges have been compounded by the inability of the country’s
business organizations to generate new knowledge or to absorb knowledge not only from those
institutions charged with the responsibility of creating knowledge in the country, but also
external knowledge. In the case of internal knowledge creation, both private research institutions
as well as academic ones are said not to be in a position to generate strategic knowledge. From
the government perspective, the reason given for such inability is the lack of knowledge in most
business organizations with respect to recognizing their problems as knowledge-based (Government of the Republic of Namibia 2007).

To stem the tide of globalization in terms of its effects in this constantly changing business environment, Namibia, like some other countries, has set herself an ambitious goal to transform her economy into a knowledge economy by 2030 (Government of the Republic of Namibia, 2004). By knowledge economy, in the Namibian context, is meant an economy in which production processes will become more knowledge-intensive and where firms compete not only on the basis of price, but also on the basis of innovation through the application of knowledge. It is hoped that such a transition will enable the country to not only join the ranks of higher income countries by the same year, but also accelerate the process of industrialization. As part of the government drive to industrialize, in 2010 the Ministry of Trade and Industry (MTI) whose mandate is to spearhead the country’s industrialization efforts, launched the National Programme of Modernization and Upgrading of Industries aimed at stimulating economic growth and competitiveness. This programme is aimed not only at creating jobs, but also at stimulating economic growth, thus leading to improved living standards (Government of the Republic of Namibia 2004).
It is against this backdrop that the researcher felt that an alternative course of action might be to explore other avenues to overcome the current knowledge deficit by relying on other ways of industrial capability development instead of waiting for scientific breakthroughs from research institutions. The literature (e.g. Chen 2009) informs us that apart from the formal route to industrial capability development, i.e. relying on government-directed and science-based industrial capability development, countries that intend to catch-up industrially can also explore other means to learn and increase their knowledge and technological capabilities (see also Cohen and Levinthal 1990; Kim 1998; Lewis 2007). The literature also tells us, without denigrating formally produced knowledge such as scientific knowledge, that some of it has limited utility. This is because sometimes it cannot be applied without further learning due to the contextual nature of knowledge (see for example, Carraher et al 1985; Lam 2000; Williams 2007). Therefore, it is assumed that informal learning and technology transfer might enable Namibian organizations to not only benefit from externally sourced knowledge in the context of the economic challenges described above and enhance their absorptive capacity, but also to capitalize on knowledge generated within organizations. Lewis (2007) and Chen (2009) inform us that informal learning and technology transfer can help economies that intend to catch-up industrially bridge the technological capability-divide. This can be achieved by absorbing, modifying and utilizing externally derived knowledge (Kim 1998). A growing body of research-based literature also shows that workplaces or organizations have come to be recognized as platforms for knowledge creation and therefore learning (see Walsh 2007). This has brought about changes in attitudes towards the workplace which for centuries was not considered a place for learning: learning was for many years, and even today in some quarters, seen as something that takes place only in the classroom. However, due to new insights from workplace research
based on new and broader conceptions of knowledge and learning, the workplace has been embraced as a legitimate source of knowledge which has economic value for organizations and economic development, challenging the dominant role played by formal learning and traditional monopolies of learning and knowledge creation (see Williams 2007).

The literature unanimously agree that many organizations in today’s highly competitive business environment characterized by rapid change and innovations, do not rely on internally generated knowledge alone (e.g. see Cohen and Levinthal 1999; Chen 2009; Inkpen 2008) to sustain their performances and ensure their survival nor do they rely on the traditional sources of knowledge such as academic institutions alone, but also on externally sourced knowledge, i.e. knowledge generated in other units or organizations. Kim (1998) provides an example of how Hyundai, for example, a developing country automotive manufacturer, increased its technological capabilities initially through the use of external knowledge, which as time went by was modified and complemented with in-house R&D. Inkpen and Pien (2006), also acknowledge the role played by external knowledge. Further, Nonaka (2007) illustrates how external knowledge can help organizations solve problems through the use of external knowledge. This is demonstrated by his example of the Japanese company that experienced difficulties in bread-making which resulted in one of its employees learning from others in the same business. Chen (2009) also supports the argument that external knowledge helps with technological capability development. In his study of how Taiwan developed her technological capabilities in the machine tool sector, although his study focused more on the inter-organizational learning processes, he convincingly argues that that country did not only rely on formal and science-based models, but also on informal ones; it
sourced external knowledge through various strategies; and as a result, the country was able to progress in that sector.

The Research Problem

Although there is agreement in the literature regarding the potential of externally derived knowledge to contribute to organizational growth and renewal as well as the enhancement of technological capabilities, the acquisition of such knowledge is considered problematic by most researchers in this research stream (Cohen and Levinthal 1990; Mowery and Oxley 1995). Several studies have identified absorptive capacity as a stumbling block to knowledge or technology transfer (see Cohen and Levinthal 1990; Minbaeva 2007; Lichtenthaler and Lichtenthaler 2010). In simple terms, technology transfer is when one organization or unit is affected by the experiences of another (see discussion on technology transfer for a more detailed definition). The problem is that in order to use externally generated knowledge, recipient organizations ought to have the capacity to absorb and utilize such knowledge. Absorptive capacity is a complex multi-dimensional construct which has attracted a plethora of research since Cohen and Levinthal’s 1990 paper entitled “Absorptive Capacity: A New Perspective on Learning and Innovation.” These writers define it as the ability of a firm to recognize, assimilate, integrate and utilize externally-generated knowledge. The development of such capability is contested in the literature in this research stream. Other areas in the literature that require further development are the sources of absorptive capacity as well as the role played by individual social agents in its creation and the social dimensions of the construct. For example, some researchers regard absorptive capacity as a result of R & D. As such, they use R & D, among other things, as proxies for absorptive capacity. What is more, the origin of absorptive
capacity is also in contention. Duchek (2013), for example, claims that absorptive capacity has social dimensions which have been hidden in the extant dominant literature. Based on the reviewed literature, the researcher concurs that there is a need for clarity on how absorptive capacity is developed, including its social aspects, and its individual antecedents. The sources of the current problems in relation to the construct of absorptive capacity have mainly to do with the manner in which it has been studied so far. Lane et al (2006), argue that the construct has been researched from different research perspectives and researchers have not been using each other’s findings to ensure knowledge accumulation and facilitate a systematic investigation of the construct. Instead they have focused on different aspects and have been investigating it from several perspectives, making it difficult for subsequent studies to build on their work.

Therefore, the current study attempted to address issues pertaining to the development of absorptive capacity in order to fill the existing gap in our understanding of these issues and to inform practice. Cohen and Levinthal (1990) suggest different ways in which absorptive capacity can be generated. They assert that absorptive capacity can also be created through manufacturing processes, i.e. while working. We are also told that technology transfer increases the knowledge base of the recipient organization (Cohen and Levinthal 1990; Mowery and Oxley 1995; Kim 1998). But it is not clear how exactly both informal learning and manufacturing processes lead to the development of absorptive capacity and to what extent as well as the role of the social agent, the human being. Hence, the academic community in this research stream feels that there are still some grey areas surrounding this construct which need to be addressed, if progress is to be made with respect to our understanding. Other researchers attribute the problems pertaining to absorptive capacity to the fact that the dominant discourse on
absorptive capacity research is considered to ‘blackbox’ individual knowledge (e.g. see Duchek 2013) and expertise and focuses on organizational level activities. As a result, the individual contributions of social agents become hidden, as alluded earlier. The actions of social agents with respect to creating absorptive capacity, however, are not the only ingredient missing which can lead to better understanding of how social agents contribute to absorptive capacity development. The other aspect of the problem has to do with the downplaying of social interactions. The extant literature also informs us that this too is a problem as social agents become separated from what was originally their product (see Lane and Lubatkin 2006). Such separation is problematic for it means that it is not immediately clear as to the source of absorptive capacity.

The other problem found in the extant literature pertaining to absorptive capacity relates to the methodology used to research the construct. Most studies have investigated it using one methodology, the quantitative paradigm (Duchek 2013). Quantitative research is reputed to have weaknesses when it comes to investigating contextual phenomena such as absorptive capacity, learning and knowledge/ technology. Duchek (2013), for instance, views the use of the quantitative paradigm in investigating absorptive capacity as inappropriate and call for more studies employing the qualitative paradigm to illuminate aspects of absorptive capacity which quantitative methodology is unable to reveal. Therefore, this study aimed to address these issues, i.e. to explore the individual antecedents of absorptive capacity, the role of social interaction, how absorptive capacity is developed as well as its sources.
The study also intended, following a small number of other studies on absorptive capacity, to employ the qualitative paradigm to investigate these contextual phenomena, thus responding to calls in the literature to use other research perspectives. To achieve this goal, the present study investigated the question: “To what extent do informal learning and technology transfer impact absorptive capacity?”

**Overview of Methodology**

This research was conducted at a government-owned organization that specializes in general engineering referred to as GlobalTech throughout this thesis for the sake of anonymity. GlobalTech has been in existence for more than fifty years. It was privately owned until independence in 1990. After independence, it was nationalized and forged new relationships with several international partners through which it sourced external knowledge/technology as part of its attempts to diversify. For example, recently it had entered into an agreement with an international organization to assemble and service their machinery. Consequently, some of its employees had gone overseas for training, where they had been shown how to assemble the machinery and how to service them. Upon their return, they had been required to share their know-how with their colleagues who had not received training from the suppliers. Most of those who had attended training overseas had received formal training before. The majority of the employees at GlobalTech learnt on-the-job, i.e. informally. Furthermore, GlobalTech had also received personnel from their suppliers to transfer know-how on how to use and service the imported technology. These factors coupled with the conceptual literature on the inability of Namibian organizations to absorb knowledge generated externally as well as the fact that it is in a knowledge intensive sector made it an attractive choice for this research.
Since this study investigated social phenomena, learning, technology transfer and absorptive capacity, different social research methodologies were considered and the qualitative research methodology was deemed suitable for this study, despite the fact that it proved to involve intensive work considering the time constraints under which the researcher operated. The qualitative methodology was considered more suitable because of the nature of the phenomena under investigation. Learning, for instance, is considered to be context dependent. In other words, it is situated. So are technology transfer and absorptive capacity.

Moreover, the reviewed literature on absorptive capacity calls for an alternative research paradigm because the quantitative paradigm has not been able to unravel some of the aspects of these phenomena satisfactorily, as mentioned earlier. For example, the quantitative paradigm, which has dominated this research stream, has side-lined the contributions of individual social agents with respect to the development of absorptive capacity. This is one of the areas in which this study is different from the others before it. It addressed the contributions of the individual social agents to absorptive capacity development by focusing not only on what happens at the group level, but also at the individual level and the agency of the social actor. As a qualitative study, this research used language as the main source of data to capture the research participants’ perspectives on the phenomena at the centre of the investigation. Due to the different philosophical assumptions which powered this study, the aim of the study was not to quantify or use statistics and make generalizations, but to capture the research participants’ perceptions and views through stories about their experiences of phenomena as well as their contextual dimensions and present them in a form of narratives. In other words, the aim of this study was an in-depth understanding of the extent to which informal learning and technology transfer impact
on absorptive capacity. As such, the study used interviews and field notes to generate data. The interviews were recorded and transcribed before they were analysed. The notes were written up and used to consolidate the research participants’ experiences. An interview schedule was used containing questions on informal learning, technology transfer and absorptive capacity. Questions were also included in the interview schedule that dealt with how externally generated knowledge was used within the organization; also each research participant was asked the same questions. The interviews lasted for about thirty minutes.

Due to the contextual nature of the phenomena at the heart of this study, the case study design was considered an appropriate instrument through which the contextual aspects could be captured. Yin (2003) supports the use of case studies in investigating phenomena that cannot be easily delineated from their context. It should be reiterated that this study was not interested in making generalizations to other contexts, although these may be possible with regard to some aspects. This study’s interest was in understanding contextual phenomena which might behave differently in a different context.

The reviewed literature formed the backdrop for the data analysis and discussion. The themes encountered in the literature review were combined to form the analytical framework. The themes included absorptive capacity, knowledge/technology transfer, informal learning, knowledge sharing, social capital theory and practice-based theories, including communities of practice.
The Outline of the Thesis

This section outlines the contents of the rest of the chapters. Chapter 2 presents the literature reviewed for this study and covers themes considered relevant to addressing the research question ranging from absorptive capacity, technology transfer, informal learning, theories of learning, including their limitations. The chapter also reviews Lave and Wenger’s community of practice theory which is seen as having a contribution to make to the development of absorptive capacity, social capital and knowledge sharing. As such, the various themes it covers provide the research framework in relation to which the problem and the findings are later discussed. Chapter 3 describes the methodology chosen for this study as well as justification for the use of such methodology. The methodology used, as indicated earlier, is qualitative and is thought to align with the conceptualization of the phenomena under investigation. Chapter 4 contains the analysis of the findings of the study and the ensuing discussion relating the findings to the different themes emanating from the literature review. The findings are organized according to the main themes that emerged from the fieldwork and are accompanied by quotations from the fieldwork and the research participants. Chapter 5 provides conclusions based on the study. The major finding of this study is that individual social agents play a crucial role in initiating actions that lead to absorptive capacity development. They decide what to learn and when to learn it. Moreover, the study concludes that intra-organizational learning processes are critical to embedding and using externally derived knowledge within the organization. Furthermore, the study concludes that social interactions facilitate the integration and use of externally sourced
knowledge. The study also confirms the findings of previous studies that the workplace provides a platform where a great deal of learning takes place. The uniqueness of this study lies in its focus on the intra-organizational learning processes that lead to absorptive capacity development at the individual as well as group levels. This chapter also briefly discusses the implications of the findings with respect to practice. It also, explains the limitations of the study and explores avenues for future research.

**Summary**

This chapter has presented some background to the research problem as well as the problem itself. The purpose of the background was to consider the broader context within which this study took place, including the theoretical and practical conditions and issues. By dealing with such issues, the chapter has provided justification as to why the study was necessary. The study has filled an important gap in our understanding with respect to how individuals contribute to the development of absorptive capacity, the processes at the level of a social agent that underpin absorptive capacity development. Such processes, according to the literature, have been ignored by researchers most of who based their investigations on the quantitative paradigm and used mostly proxies to measure absorptive capacity. The next chapter reviews the literature on absorptive capacity, informal learning, knowledge/technology transfer and other themes considered relevant to the present study.
Chapter 2

The Literature Review

Introduction

The literature review starts with an overview, covering issues relating to why this study took interest in absorptive capacity from the literature point of view as well as what the literature says about absorptive capacity. The chapter then moves on to discuss the construct in detail starting with the different conceptualizations found in the literature. The chapter also deals with the enabling as well as those factors that restrain the development of absorptive capacity. This discussion is interlaced with perspectives drawn from the literature with respect to how knowledge might be implicated. This is followed by a section on knowledge/technology transfer. This section starts with definitional issues pertaining to knowledge/technology transfer before establishing the relationship between knowledge/technology transfer and absorptive capacity. The next section deals with informal learning, the relationship between it, absorptive capacity and knowledge/technology transfer. After this comes the review of approaches used in investigating absorptive capacity that are found in the literature. The contribution of this study to the current literature is also included in this chapter. Before concluding and stating the research question, the chapter considers social capital as well as knowledge sharing, and attempts to establish their relationship to the main concepts at the heart of the study.
Overview of the Topic

The literature recognizes the value of external knowledge/technology with respect to organizational renewal and growth (see Nonaka 2007; Inkpen 2008). As a result, it unanimously agrees that most innovations are not based on internally generated knowledge, i.e., on knowledge generated within the organization that is exploiting it. The literature tells us that most innovations are derived from externally generated knowledge (see Cohen and Levinthal 1990). Such knowledge is seen as critical, particularly in today’s highly competitive business climate, where organizations are expected to constantly generate new knowledge and learn to be able to provide new products and services. However, despite the consensus in the literature on the significance of such knowledge, the literature also informs us that there is a problem when it comes to recognizing and utilizing externally generated knowledge: the recipient organization/unit of external knowledge needs to be able to recognize, integrate and use such knowledge, if it is to create economic value. In other words, the recipient organization or unit must have absorptive capacity (see Cohen and Levinthal 1990; Kim 1998; Zahra and George 2002).

Absorptive capacity, according to the literature, can be developed in a number of ways. For instance, it can be nurtured through research and development (R&D) as well as through manufacturing processes and training (Cohen and Levinthal 1990). This means that apart from research-based absorptive capacity development, working can also enhance a company’s ability to recognize and use external knowledge. The other way of developing absorptive capacity, according to the literature, is through the use of external knowledge (see Kim 1998). This is also known as knowledge/technology transfer (see Krishnaveni and Sujatha 2012). By knowledge/technology transfer is meant a situation in which an organization or unit is affected by the
knowledge resources generated in another organization or unit. External knowledge can be transferred, among other things, through training as well as through machinery, work processes such as routines and people (Cohen and Levinthal 1990; Kim 1998; Lewis 2007; Nonaka 2007; Chen 2009). People are conceived as the main carriers of knowledge, particularly where tacit knowledge is concerned. In this regard, communities of practice are seen as an effective vehicle for transferring such knowledge which affects the knowledge base of the recipient organization provided the receiver is prepared to invest time and exert energy through learning to absorb, reshape and use the new knowledge (see Krishnaveni and Sujatha 2012).

The main area of contention in the literature pertains to issues relating to the development of absorptive capacity, as pointed out earlier. For example, although the literature tells us that absorptive capacity can be developed through manufacturing processes and that there are two elements that are critical to the development of absorptive capacity, namely prior related knowledge and intensity of effort, it is not clear how those elements translate into absorptive capacity; the literature is vague on this issue (see Cohen and Levinthal 1990; Mowery and Oxley 1995; Kim 1998). The literature ascribes the lack of clarity to several factors. The main one being the fact that most previous studies that have investigated absorptive capacity have been quantitative and have been relying on proxies to measure the construct. Yet, the literature informs us that absorptive capacity begins with social agents. But because of the manner in which the construct has been researched over the years, the link between it and its sources has been severed resulting in reification. As such, in general, most previous studies have not been addressing the social dimensions of the construct. Consequently, the absorptive capacity discourse community feels that there is a lack of clarity in terms of how absorptive capacity is
developed, particularly they point to the fact that no attention has been paid to the role of the individual social agent in the process of absorptive capacity development. Moreover, it is also argued that social interactions have not been sufficiently addressed in absorptive capacity research. Social interactions are regarded as critical to the institutionalization of external knowledge. The final major factor that is perceived to have contributed to the current problems in this research stream has to do with the methodology used to research the construct; most previous studies have been quantitative. As such, they are perceived to have created the present problems (see Easterby-Smith et al. 2008; Hotho 2011; Duchek 2013). These factors encapsulate the main issues that raise questions surrounding absorptive capacity that have not been answered yet in the extant literature. These issues require urgent attention to facilitate progress in terms of practice. This study, therefore, intended to fill this gap in our understanding of absorptive capacity with respect to its development and the role played by the individual social agent as well as how absorptive capacity is developed through work from a learning perspective. To achieve the above goal, the literature review will focus on the main concepts forming the central research question. First the review considers how such concepts have been conceptualized. Then it moves toward attempting to establish, among other things, how they relate to each other.
Absorptive Capacity

The absorption and utilization of external knowledge/technology is regarded as a potential route to technological capability development, especially for countries wishing to catch up industrially (Kim 1998; Lewis 2007; Chen 2009), as mentioned in the preceding section. This means that countries which are lagging behind with respect to industrial capability development can rely on knowledge generated by the industrial forerunners to learn and increase their industrial knowledge base. However, some literature on knowledge/technology transfer has identified absorptive capacity as one of the major factors hindering inter-organizational knowledge/technology transfer (Minbaeva et al. 2007; Bessant et al. 2005; Inkpen 2008; Lichtenhaler and Lichtenhaler 2010). Absorptive capacity (ACAP) is a complex construct which many researchers find hard to pin-down: it has hitherto proven slippery with respect to definition. The illusiveness of the construct is manifested by attempts that several researchers have made to conceptualize this difficult, multi-dimensional construct. Lane et al. (2006) lend support to the view that absorptive capacity is not easy to operationalize. Moreover, the empirical operationalization of the construct has not been focused (Todorova and Durisin 2007). This, according to Lane et al. (2006), is because most researchers who have been investigating the construct have not been building on each other’s work; instead they focused on different aspects of the construct. This is evidenced by the work of Lane et al. (2006) who conducted an analysis of 289 research articles dealing with the construct; in their study, they found that researchers have not been using each other’s findings very much to ensure knowledge accumulation and a systematic investigation of the construct. This has led not only to contradictory findings, but also to questions being asked about the validity of the findings and questions as to whether these researchers have been
investigating absorptive capacity or something else (Lane et al. 2006). This is because, as it will be explained later in more detail, most studies focused on R&D as proxies for measuring absorptive capacity. Furthermore, absorptive capacity has been studied from different research perspectives (Lane et al. 2006). For instance, some researchers have studied it from a socio-cognitive perspective (see Cohen and Levinthal 1990) while others investigated it from relational perspective (Lane et al. 2006). Still other researchers studied it from a learning perspective. This has led to lack of insights that further our understanding of the construct and inform practice with respect to how absorptive capacity can be developed.

The history of the construct of absorptive capacity has been traced to the seventies. However, its recent usage has been associated with Cohen and Levinthal who employed it in 1989 in their paper published in the *Economic Journal* (Lane et al. 2006). But the literature tells us that the construct did not become prominent until the same authors used it in 1990. These researchers, whose definition is often cited in the literature, define absorptive capacity as the “ability of a firm to recognize the value of external [knowledge], i.e. knowledge generated outside the organization or unit, assimilate it and apply it to commercial ends” (Cohen and Levinthal 1990: 128). By assimilation is meant modifying aspects of the new knowledge and making it part of the recipient organization’s knowledge base. There are some similarities here with the process of technology transfer as conceived by Krishnaveni and Sujatha (2012). Accord to Krishnaveni and Sujatha (2012), the process of technology transfer involves modification of the received knowledge to enable it to suit the new environment. However, although most researchers in both research streams acknowledge the need for the modification of externally derived knowledge, there is no indication given in the literature as to how the modification occurs.
For such knowledge to create commercial value, it has to be applied in the manufacturing or other processes.

Absorptive capacity, according to Cohen and Levinthal (1990), is constituted by prior related knowledge, i.e. the knowledge the firm possesses relating to external or new knowledge. Such knowledge is considered critical to the acquisition and assimilation of externally generated knowledge/technology. Specifically, it is considered to help the recipient firm to understand the externally sourced knowledge, assimilate and use it (Kim 1998). Dochy and Alexander (1995), in their paper on the management of prior knowledge, provide several definitions of the prior knowledge construct which are found in the literature. Some of the definitions are such as ‘implicit knowledge’, ‘background knowledge,’ ‘permanent stored knowledge,’ ‘experiential knowledge,’ etc. Further, their analysis of the literature that used the prior knowledge multi-dimensional construct, revealed that it has two aspects, namely knowledge and skills. The knowledge component consists of both explicit and tacit dimensions (Dochy and Alexander 1995). Explicit knowledge, as mentioned elsewhere in this thesis, is knowledge that can be codified. In contrast, tacit knowledge is knowledge which cannot be codified and is embodied in the social actors. It is transferred, *inter alia*, through interactions and observations and it is action-oriented. However, it should be remembered that the two types of knowledge are considered by some researchers to interact. Nonaka (2007), for example, advocates this kind of relationship between these two types of knowledge, although other researchers believe that the two have different functions. But Nonaka (2007) also reminds us that tacit knowledge is the basis for further knowledge creation. Tacit knowledge has also been linked to absorptive capacity by some
researchers. Mowery and Oxley (1995), for instance, define absorptive capacity as skills used in dealing with elements of tacit knowledge. Remember that prior related knowledge is also referred to as tacit knowledge (Dochy and Alexander 1995).

Cohen and Levinthal (1990) distinguish between individual absorptive capacity and organizational absorptive capacity. The former is seen as the source of the latter, i.e. the latter cannot exist without the former. This supports the view that only human beings have the capacity to generate knowledge. This is because organizations do not possess cognitive capacity, which facilitates learning. Organizational absorptive capacity, in contrast, although dependent on individual absorptive capacity, is conceptualized differently: it is viewed as affected by the communication structures between the environment and the organization as well as within the organization, between units. In addition, it involves the ‘character and distribution’ of knowledge in the organization (Cohen and Levinthal 1990). However, this perspective is not without its problems. This is because it too seems to reify absorptive capacity by attributing such human qualities to the organization (Lane et al 2006).
Other elements considered crucial to absorptive capacity development, in addition to prior related knowledge, are intensity of effort and diversity of backgrounds. According to some researchers on absorptive capacity, it is not sufficient to possess prior related knowledge (Kim 1998), meaning that the acquiring organization, unit or person has to invest energy and time to integrate externally generated knowledge with existing knowledge (Cohen and Levinthal 1990; Kim 1998; Zahra and George 2002; Minbaeva et al 2007). This means that it is insufficient to have prior related knowledge: something else has to happen to ensure that the newly-acquired knowledge is reshaped to suit the requirements of the new environment (see also Krishnaveni and Sujatha 2012). The reshaping is driven by the beliefs, values and other considerations with respect to the new environment. Moreover, the reshaping of external knowledge also implies an active involvement of social actors in the process of external knowledge absorption and application in the recipient organization. The role that social actors play in the absorption and utilization of external knowledge has not been given prominence in the current literature (Hothe et al 2011). In addition, the involvement of the social actor suggests that he or she has to be motivated to want to invest time and energy (see Mankin 2009). But the some literature seems to assume that knowledge absorption, integration and application are guaranteed once external knowledge is made available (for example see Cohen and Levinthal 1990; Mowery and Oxley 1995; Kim 1998).
The investment that is required to transform external knowledge before it is applied can take the form of learning, which might involve, among other things, learning through interaction, problem solving and experimentation or trial-and-error. The more intense the efforts made, the more links are created between the existing knowledge and the new knowledge (see Kim 1998). Furthermore, organizations employing people from diverse backgrounds in terms of knowledge are regarded as better off with respect to absorptive capacity development than their counterparts that do not have such diversity: their chances of having knowledge related to external knowledge are higher than those who lack diversity (Cohen and Levinthal 1990).

However, subsequent studies attempted to re-conceptualize absorptive capacity with the view to seeking deeper understanding of the concept. But most of them are accused of having taken a different direction, resulting in retarded growth of this research stream. The source of the problem as identified by Lane et al (2006) is the focus on R&D and patents as proxies for measuring absorptive capacity, as alluded earlier. With the use of such proxies came the reification of the construct. Lane et al (2006) convincingly argued that the concept has been reified. Reification is when a concept such as absorptive capacity is detached from the roots of its origin. Lane et al (2006), inform us that Lukacs used the word ‘reification’ to describe labour ‘as an abstract concept’ without mentioning the performers, those who engage in productive activities (Lukacs 1971 cited in Lane et al 2006: 835). In other words, reification is when human activities or ‘products’ are presented as if they originated from somewhere else or have a non-human source. In the context of this review, reification refers to the presentation of the different processes involved in the development of absorptive capacity as if they were not produced by humans.
The separation of humans from the product of their labour discussed above seems to be what has prompted some researchers to lament the lack of social dimension in the current absorptive capacity discourse. For example, Hotho et al. (2011) argue that the role of individual social actors in developing absorptive capacity has been insufficiently addressed by the extant literature. The neglect of the role of the social agent can be attributed to the preoccupation with proxies and the use of quantitative methodology. As a result, there is a gap in the literature on absorptive capacity development that needs filling. The current literature presents absorptive capacity in a manner that conceals its origin. This research hopes to make a contribution in this area by unravelling what has been hitherto hidden. Although, this problem was first diagnosed many years ago, the literature shows that not much progress has been made to redress this shortcoming: the social actors or agents are still kept out of the picture. Yet, the literature unanimously agrees that absorptive capacity starts with humans, the individual, the employees (Senge 1990; Cohen and Levinthal 1990; Kim 1998; Zahra and George 2002).

Other conceptualizations of absorptive capacity are such as that of Lane and Lubatkin (1998). They re-conceptualized absorptive capacity as a dyad-level construct. According to these researchers, a firm’s capacity to learn from another firm hinges on the similarities between the learner and the teacher, i.e., between the acquirer of knowledge/ technology and its supplier, similarities in terms of ‘knowledge bases,’ ‘compensation policies,’ ‘organizational structures’ and ‘dominant logics.’ Zahra and George (2002) also re-conceptualized absorptive capacity; they re-conceptualized the construct as a dynamic capability. They distinguish between a capability and dynamic capability. Winter (2000) defines a capability as “a high level routine that together with its implementing input flows, confers upon an organization’s management a set of decision
options for producing significant output of a particular type” (Winter 2000: 983). Winter (2000), further sees capability as manifested in an organization’s actions to produce outputs that are of significance to the organization (Winter 2000). In contrast, Zahra and George (2002) conceive dynamic capability as oriented towards change in an organization. In other words, such capabilities are of a strategic nature. Zahra and George (2002) further conceptualize absorptive capacity as consisting of two co-existing subsets, namely, potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP). According to these authors, the former provides the firm with capabilities to acquire and assimilate external knowledge. This is where prior related knowledge is called into service. In other words, the organization depends on the knowledge accumulated to make sense of external knowledge (Kim 1998). By external knowledge is meant knowledge that is transferred from another unit or organization, either within the country or outside. This means that this is the aspect of absorptive capacity which plays a role in the transfer of knowledge/technology. As such, it can be understood to establish the relationship between the two, i.e. knowledge/technology transfer and absorptive capacity. The other ingredient required in the process of knowledge assimilation is effort (Cohen and Levinthal 1990; Kim 1998). Effort is required to ensure that knowledge is interpreted and acquired. It is assumed that the combination of prior related knowledge, also known as tacit knowledge (see Dochy and Alexander 1995) and effort constitutes learning. This is consistent with what Kim (1998) says when he says that absorptive capacity is a combination of the two (Kim 1998), effort and accumulated knowledge. This is also congruent with those researchers who link Absorptive capacity with learning such as Sun and Anderson (2008). Sun and Anderson (2008), although at a conceptual level, claim to have established a relationship between absorptive capacity and learning. Mowery and Oxley (1995), on the other hand, define absorptive capacity as a range of skills required to handle tacit
elements of knowledge/ technology transferred from external sources and to modify such knowledge/ technology to suit local conditions (Mowery and Oxley 1995: 81). However, such skills are hardly explained in the literature. For example, we do not know what those skills are and how they are used to modify externally sourced knowledge. Hence, the need for research that focuses on what happens both between the recipient and supplier of knowledge as well as within the organization receiving externally generated knowledge. How is such knowledge transformed? What happens that leads to transformation of external knowledge when it reaches the recipient organization? These are all questions which the current literature has not been able answer; and which the present study intended to address. As it can be seen from the above, there are many conceptualizations of ACAP proffered in the extant literature. Moreover, there are disagreements with respect to the definition of absorptive capacity. Now that absorptive capacity has been discussed, the review now turns to how the literature says it is generated.

According to the literature, absorptive capacity can be generated in several ways. The dominant mode of its generation found in the literature is through research and development (see Cohen and Levinthal 1990; Mowery and Oxley 1995). This is through the generation of scientific knowledge, knowledge which can be codified in the form of publications; also known as explicit knowledge. This implies that firms which engage in research are seen as being able to increase their absorptive capacity more than their counterparts that do not. Nevertheless, the literature also acknowledges other ways of generating absorptive capacity other than the scientific route. For example, manufacturing has also been identified as a generator of absorptive capacity (see Cohen and Levinthal 1990). This supports the views that people learn by doing and through interacting with others and their work environment. This perspective is congruent with informal
learning, which will be considered later (informal learning takes place through the performance of work activities). Also, it is notable that learning by doing relates to the knowing-in-action perspective or the “epistemology of practice”, to borrow Cook and Brown’s (1999) terminology. This perspective regards knowing as something which occurs during human actions, i.e. during the stream of activity (Orlikowski 2002; Ibert 2006). This kind of knowing is understood to be the same kind of knowing which leads to the creation of new knowledge when externally generated knowledge, mentioned earlier, is applied to a new context. This is congruent with what Krishnaveni and Sujatha (2012) tell us that when knowledge is transferred it changes, as further learning takes place when the recipient of externally derived knowledge attempts to apply such knowledge in the new environment.

The other problem identified by the literature regarding research on absorptive capacity, is related to the research methodology. The literature indicates that research relating to absorptive capacity has been dominated by the quantitative research paradigm (see Mowery and Oxley 1995; Liao et al 2006; Minbaeva et.al 2007; Easterby-Smith 2008; Duchek 2013). And most studies have investigated the construct from a positivistic perspective. Positivism is a natural science epistemological position that supports the imitation of natural science methods in studying social phenomenon (see Bryman 2004). The aim of such studies was to measure absorptive capacity in order to test theories. This has resulted in the current state of affairs: accusations that quantitative studies cannot provide a better understanding of the construct (Mark Easterby-Smith 2008). Duchek (2013) argues that the quantitative measures used are ill-suited to illuminate absorptive capacity because of the multi-dimensional and contextual nature of the construct: quantitative studies do not reveal the underlying constituent processes of the construct
(see McMillan 2009). This is because the measures are perceived to hide some aspects of the processes involved. For example, studies reported by Duchek (2013) used measures such as investments on training and numbers of PhD holders in R&D departments to measure absorptive capacity, while others relied on the existence of R&D departments in organizations. In line with Duchek (2013) and others, this study also perceives such measures as problematic: they do not tell the whole story as far as absorptive capacity development is concerned. This is because there is no guarantee that what is invested, in training, for instance, will result in the development of absorptive capacity, given the fact that there are many variables involved (Duchek 2013).

Because of what appears to be disillusionment with respect to the employment of the quantitative paradigm in researching absorptive capacity, some researchers have turned to the qualitative paradigm (see Mark Easterby-Smith 2008; Hothe 2011; Duchek 2013). Their findings show that social interactions play an important role in the transformation of external knowledge to local context. Yet, as argued above, such interactions and the role of social actors in developing absorptive capacity remain concealed in the extant literature. Although there are some researchers who acknowledge the role played by social interactions, we still do not know how social actors interact with regards to absorptive capacity development: there is no empirical evidence on the role of social interactions in relation to the construct. Some researchers ascribe the side-lining of social actors to the origin of the concept the roots of which they say can be traced to cognitive science (Hothe et al. 2011; Cohen and Levinthal 1990). Consequently, the literature on absorptive capacity is dominated by a narrow conceptualization of the construct. The cognitive perspective views absorptive capacity as an individual-centered phenomenon
which takes place in the human mind. As it was pointed out earlier, this perspective regards the brain as a computer. Therefore, it does not provide a sufficient account of learning and knowledge. Hence, there is a need to seek for a perspective that offers a broader view of absorptive capacity, i.e. one that takes into account not only the role of the individual, but also the social dimension.

To summarise, external knowledge is critical for technological capability development and organizations can rely on such knowledge to increase their knowledge base. But the literature also tells us that for organizations to benefit from such knowledge, they need to have the capacity to absorb and use external knowledge. However, it is not enough to be exposed to external knowledge. The recipient organization has to invest time and energy to absorb and use external knowledge. But the literature is vague on the processes that lead to absorption and transformation of external knowledge. Although the literature acknowledges that absorptive capacity can be developed in different ways, it has been dominated by the use of proxies to measure absorptive capacity. Research into how manufacturing, for example, enhances absorptive capacity has been ignored; and so has training. The use of proxies and the quantitative paradigm have led to lack of insights into the other modes of absorptive capacity development. The other outcome of the preoccupation with proxies and the quantitative methodology is the side-lining of the social agent as well as the neglect of social interaction. Hence, there are calls in the literature to investigate the role of the social agent in the development of absorptive capacity. The literature further calls for research with respect to social interaction. Next knowledge/ technology transfer which is perceived as having a contribution to make to absorptive capacity development will be reviewed.
Knowledge/Technology Transfer

This section examines how the phenomenon of technology transfer has been conceptualized in the literature and clarifies the sense in which it is employed in this study. In addition, the section also attempts to establish a connection between knowledge/technology transfer and absorptive capacity. According to Cohen and Levinthal (1990), the literature indicates that most innovations are not a result of R&D efforts by the organization that is applying such knowledge; instead they come from imitating others. In other words, the knowledge that underpins them is generated elsewhere initially before it is exploited by the recipient organization (see Inkpen and Pien 2006; Lewis 2007; Chen 2009). It is the use of such knowledge by the organization other than the one that originally generated it that is referred to as knowledge/technology transfer. The literature review has revealed that technology transfer can mean different things to different people (see Kremic 2003). Some writers and researchers conceive technology transfer as a process involving the movement, from one organization to another or from a developed country to a developing country (see Johansson 1999; Lewis 2007) of physical assets or knowledge and human capabilities. Argote and Ingram (2000) define knowledge/technology transfer as a process through which organizational units are affected by the knowledge-based experiences of another. The literature also indicates that the process of technology transfer can also take place within a firm, i.e. between units. For example, it can take place between the R&D department or laboratory and other units of the same firm. In a recent study on knowledge transfer Krishnaveni and Sujatha (2012) define knowledge transfer as: “the conveyance of knowledge from one place to another, person or ownership to another” (Krishnaveni and Sujatha 2012). They go on to state that:
Successful knowledge/technology transfer means that it results in successful creation of and application of knowledge in organizations. Knowledge transfer does not mean that the knowledge transferred has to be exactly the same structure. Transfer [of knowledge] does not imply a full replication of knowledge in the receiving unit (Krishnaveni and Sujatha 2012: 27).

Krishnaveni and Sujatha (2012), make an important point because the assumption that seems to underpin the transfer discourse in the literature is that when knowledge is transferred, it is replicated in the new environment in the exact form in which it was generated in the supplier organization without modification (see Chawla and Joshi 2010). Also, the recipient organization of the new knowledge, to be able to utilize such knowledge will require the capacity to absorb it before modifying it to make it fit in the new environment. This is due to the contextual-nature of knowledge. Therefore, adjustments are often necessary, as Krishnaveni and Sujatha (2012) remind us. This is also congruent with the view expressed by other researchers that knowledge cannot be moved around as if it were an object (see Ibert 2006).

The literature informs us that knowledge/technology can be transferred in a number of ways. For instance, according to Inkpen (2008), knowledge can be transferred by moving people, specific tools and technologies, routines and networks that combine people, tools and routines. However, some literature emphasizes that for the process of knowledge/technology transfer to be successful people have to be involved (e.g. see Inkpen 2008). In other words, knowledge/technology is best transferred when you move the people who carry the knowledge/technology required. This is because of the tacit nature of knowledge that is regarded as critical to the growth of organizations and which provides organizations with competitive advantage. Most of
it is tacit; tacit knowledge is embodied: it is carried by the social actors (see Nonaka 2007). What can also be inferred from this is that the transfer of knowledge / technology also has a human or social dimension. This is supported not only by the fact that communities of practice are also regarded as effective vehicles for knowledge transfer (see Krishnaveni and Sujatha 2012), but also by what some studies are telling us that social interaction is critical to the sharing and transfer of knowledge (see Ombembe 2010). Apart from the various channels mentioned above through which technology can be transferred, Lewis (2007) has identified several other strategies countries use to obtain technologies developed and knowledge generated in other firms or countries: foreign direct investment (FDI), licensing, joint ventures or “bi-or multilateral technology agreements among governments.” Apart from these channels, the literature indicates that firms can also establish informal linkages to access external knowledge/ technologies (Chen 2009). These connections are often between employees in different organizations.

The literature further indicates that knowledge/technology transfer can lead to acquisition and utilization of external knowledge by the recipient organization, that is, the organization other than the one that has generated it (Krishnaveni and Sujatha 2012). Several studies have illustrated how countries can enhance their technological capabilities through external knowledge (see Lewis 2007; Chen 2009). For instance, Kim (1999) claims that technology transfer influences the existing knowledge base of firms. This occurs through the transfer of codified knowledge as well as through knowledge that is embodied in physical equipment. Codified knowledge is considered easy to transfer. Its transfer can be done through documents, books or other such artefacts (see Krishnaveni and Sujatha 2012). Tacit knowledge, on the other
hand, is transferred through interactions as well as training. Krishnaveni and Sujatha (2012) show how communities of practice help with the transfer of tacit knowledge. In study at Hyundai, Kim (1998) also demonstrates how the company elevated its absorptive capacity through the construction of crisis, which compelled the organizational members to intensify their efforts to learn. Moreover, they also brought in people from the supplier organizations to work with the local engineers. In this manner the recipient organization was able to grow its technological capabilities and its ability to integrate and utilize externally sourced knowledge. Such knowledge was supplemented by their in-house R&D (Kim 1998). In addition, Chen (2009) argues that countries that intend to catch-up technologically have an alternative route to build up their technological capabilities through transferring technologies from advanced countries. This implies that such countries can increase their absorptive capacity through learning from others.

However, although there is unanimous agreement that knowledge/technology transfer is useful and can help late industrializing countries to catch-up, as pointed out above, the social aspects of technology transfer per se are also neglected in most literature, just like in the absorptive capacity discourse discussed earlier. Therefore the current conceptualization of technology transfer that does not heed the social dimension of the processes involved is considered limited or insufficient. For instance, critics argue that the social nature of technology transfer and its cultural aspects are not reflected in the literature (Orlikowski 2000). The assumption underpinning such a conceptualization of technology appears to be based on the view of technology in its physical manifestation only without considering the knowledge underpinning technology and its social, dynamic and emergent nature as well as the practice aspect (see
Orlikowski 2000; Bijker 2010). Therefore it is considered necessary to take into account the social and cultural dimensions to overcome the perceived deficiency resulting from narrow conceptualization of technology transfer (see also Orlikowski 2000; Bijker 2010). Social actors infuse their products/processes with certain cultural knowledge which requires decoding, if the recipient of such technology is to successfully apply the transferred technology in their own contexts. This argument is congruent with other researchers who demonstrate that culture affects technology transfer (see Hirt 2012). That knowledge/technology transfer does not happen in a cultural vacuum, is also demonstrated by Glisby and Holden (2003) through their critique of one of the most cited theories in knowledge management: Nonaka’s modes of knowledge conversion which the writers claim has been accepted as being applicable in all cultural contexts.

Hofstede (1991) describes culture as the “mental programming,” the way people from different cultures feel, think and act. Chen et al. (2010), define culture as “a system of beliefs that is deeply embedded within the society and is reflected in the behaviours of organizations and people” (Chen et al. 2010: 230). Wilkesmann et al. (2009), in their study on cultural characteristics which influence knowledge transfer, found some differences between different countries. Another study conducted by Chen et al. (2010) on the impact of culture on knowledge transfer between different cultures revealed difficulties where knowledge transfer crossed cultural boundaries. The discussion on the social dimensions of technology knowledge/technology transfer is considered relevant to this study because absorptive capacity, discussed above, is also considered to have social dimensions. The latter are regarded as having a critical role to play in the process of absorptive capacity development.
In summary, knowledge/technology transfer involves the use of knowledge / technology by an organization other than the one that has originally generated it. It can be the use of capabilities developed elsewhere, i.e. in a unit or department or another organization. Knowledge/technology can be transferred in various ways. The most effective way is through moving people with the know-how. The literature argues that communities of practice are an effective mechanism for transferring knowledge, especially tacit knowledge. The other type of knowledge, explicit knowledge, can be transferred through manuals and drawings. Knowledge/ technology transfer can also increase the recipient organization’s knowledge base, if the new knowledge is modified to suit the new environment. Since this study covers two aspects, the review will now turn to the second aspect of the research question, informal learning, which is regarded as a substitute for formal learning and an alternative route to skills development and knowledge acquisition.

**Informal Learning**

According to the literature, informal learning has a long history (see Carliner 2013). Its genesis can be traced to the time before standardized training systems (Marsick 2009). In other words, it is the oldest form of learning. The literature contains multiple definitions of informal learning (see Marsick and Watkins 1990; Ernaut 2004; Marsick 2009). For instance, some writers call it workplace learning while others refer to it as informal learning or non-formal learning. Fuller et al. (2003) adopting Beckett and Hager’s “description”, for instance, define ‘informal learning’ as organic/holistic; contextual; activity and experienced based, [which] arises in situations where learning is not the main aim [and it is activated] by individual learner rather than by teacher/
trainer” (Fuller et al. 2003:3). Eraut (2004), on the other hand, defines informal learning as “learning that comes closer to the informal end than the formal end of the continuum (2004: p 250). He goes on to say that the characteristics of the informal end of the continuum include implicit, unintended, opportunistic, unstructured learning and the absence of a teacher. In addition to defining informal learning, Eraut (2004) has identified several modes of learning within this domain: ‘implicit learning’, ‘deliberative learning’ and ‘reactive learning.’ Reber defines implicit learning as ‘the acquisition of knowledge independently of conscious attempts to learn and in the absence of explicit knowledge about what was learned’ (Reber 1993 cited in Eraut 2004: 115). The other category identified by Eraut (2004), which lies at the other end of his continuum is deliberative learning. As the name suggests, deliberative learning occurs when time is set aside specifically for the generation of knowledge and learning. Such learning can result from review of past events, experiences or actions. It can also occur when individuals are engaging in problem-solving and planned informal learning activities. Reactive learning, on the other hand, is explicit in the sense that the learner is aware that it is taking place and can be articulated through reflections. It takes place almost in an unplanned fashion, i.e. without anytime set aside for it (Eraut 2004).

Informal learning is often contrasted with formal learning in the literature. Formal learning is a form of learning that takes place in an organized setting, follows a learning framework, has set targets in terms of outcomes and happens in the presence of a teacher or trainer. Moreover, upon completion, formal learning is certified (Eraut 2004). Such learning is mainly cognitive and focuses mainly on explicit knowledge. The latter is knowledge which can be expressed in different forms such as books. Such knowledge is seen as having certain dimensions missing and
requires further learning upon application. Although still popular, formal learning has been criticized for being isolated from realities of workplaces. Moreover, it is accused of being deficient in terms of addressing the practical needs of organizations, particularly in today’s highly competitive business environment characterized by rapid change. For example, critics say that it is unable to supply knowledge and skills that organizations need to be able to survive this highly competitive business environment.

In contrast, informal learning has come to be seen as necessary to fill the gap that formal learning is unable cover (see Cohen and Levinthal 1990; Kim 1998; Walsh 2007; Krishnaveni and Sujatha 2012) with respect to industrial capability development and knowledge/technology transfer. For example, Cohen and Levinthal (1990) remind us that apart from R&D, absorptive capacity, as mentioned earlier, can also be generated through training and manufacturing processes. The latter infers that absorptive capacity can be enhanced while engaging in work activities (see Kim 1998; Walsh 2007). This implies that people generate insights that enhance their knowledge base as they engage in work, interacting with each other and their work environments, including the different artefacts in it. This is in line with the literature that views engaging in work activities as a way of creating knowledge and enhancing the existing knowledge base (see Ibert 2006; Nonaka 2007). It also resonates with community of practice theory (Wegner 2000). This theory views learning as something that takes place as a result of enculturation in the practices of communities. According to this perspective, employees are socialized into work practices and learn from old-timers through interactions, observations and imitation.
Marsick (2009) tells us that Dale and Bell, found several benefits of informal learning: flexibility, employability, adaptability, rapid transfer to practice, resolution of work-related problems through regular review of work practices and performance. Although the impact of such learning is considered difficult to measure and is highly contested, Fuller et al. (2003), in a study commissioned by the British Department of Trade and Industry (DTI), in which they examined how informal learning influenced organizational performance, concluded that informal learning might impact business with respect to performance. In another study, Walsh (2007) also concluded that informal learning had the potential to help workers in the engineering sector to increase their knowledge and skills at the workplace.

The literature also indicates that informal learning is underpinned by certain theories. Such theories are thought to be relevant to this research as they do not only reveal the underlying assumptions about how informal learning takes place, but also the processes involved; these assumptions and processes are not discernible from the definitions and are considered relevant to the present study because they relate to absorptive capacity, as it will be shown in this section. Although most authors appear to have drawn from different perspectives with respect to the processes and the steps underlying the different ‘brands’ of informal learning, most perspectives see informal learning happening as a result of a trigger in the organizational environment (see Kim 1998; Senge 2006; Marsick et al. 2009; Engeström 2001). Marsick et al (2009) assert that the learning from experience theory has been influenced by Dewey’s ideas of pragmatism, i.e. the cycle of problem solving through reflections. According to this perspective, this cycle starts with a discrepancy between what is expected and what happens (Marsick et al 2009; Senge 2006). This leads to a search for solutions and experimentation through trial and error. It is such
experimentation that culminates in learning as people strive to achieve the desired results (see Kim 1998). Underpinning, most of these theories appears to be the stimulus-response type of theory of learning.

However, the above conception of learning does not seem to take into account learning that does not take place as a result of a trigger. For example, some researchers tell us that learning takes place while engaging in work activities (Nonaka 2007; Walsh 2007). According to this view, learning takes place in the middle of actions. Ibert (2006) supports this view when he says knowing happens in the ‘stream of activity.’ Although learning can result from experiences triggered by something in the organizational environment, it can also occur while working on something; for example, as a result of reflecting on past experiences. Therefore, conceiving learning as stimulated by something in an organizational environment is perceived as narrow because learning happens all the time.

Marsick et al. (2009) inform us that the cycle of problem-solving, mentioned above, was later drawn upon by Kurt Lewin and others who developed action research. Action research involves systematic cycles of identification of a problem, generation of data, reflection on evidence, learning and planning based on learning (Marsick et al. 2009). Chris Agyris and Donald Schön adapted the ideas of Kurt Lewin to develop action science, a systematic theory ‘for learning from experience in groups and organizations.’ The theory of action they developed consisted of espoused theories and theories-in-use. The former represent the ideal, i.e. how an individual or organization would like the world to be, but which does not precisely reflect their actual actions (see Erut 2004). The latter, on the other hand, refers to the mental models (Senge 2006). These mental models, the literature tells us, are part of tacit knowledge (see Nonaka 2007); they help us
to make sense of the world and underpin our actions (Senge 2006). Although perhaps using a
different terminology to refer to these cognitive structures that enable individuals to interpret
/represent events and experiences, Billet (1994) claims that such mental models are critical to
knowledge construction (see also Nonaka 2007). The mental models are conceived in this study
as relating to prior related knowledge, which was mentioned earlier in connection with
absorptive capacity. Remember that the mental models are said to guide action: they help with
sense-making. According to the absorptive capacity perspective, in order for an organization to
absorb external knowledge and apply such knowledge, it must possess prior related knowledge.
Such knowledge has been defined variously (see Dochy and Alexander 1995) as implicit or tacit
knowledge. Therefore, mental models are considered relevant to this research as they are
perceived as the basis for prior related knowledge which enables employees to recognize, absorb
and utilize external knowledge.

To summarise, informal learning is defined in different ways and takes a variety of forms. What
the different forms have in common is that they all occur in the absence of a teacher: the learning
is directed by the learner. In most literature, informal learning is perceived as triggered by
discrepancies in the environment. However, this research regards this conception narrow as it
does not take account of learning that takes place in the absence of a stimulant, so to speak.
Informal learning is conceived as happening all the time, regardless of whether or not we are
conscious of it or not. Informal learning is seen as more effective than formal learning in the
sense that it is regarded as having advantages over formal learning. Several studies that have
investigated informal learning have reported that it could impact skills development and the
acquisition of knowledge. This type of learning has also been linked to schemata. These mental
structures are regarded as responsible for sense-making and guiding human action. In fact, some researchers perceive them as connected to the creation of knowledge as well as in the processes of the recognition, assimilation and use of external knowledge, especially at the individual level. At group level, they are also said to facilitate different operations. Some researchers (see Walsh 2007; Zoethout et al 2008) identified several enhancers of learning. Such enhancers will be discussed next.

**Learning Enhancers**

Also pertinent to this research are learning enhancers in the workplace which have been identified by some researchers. These are such as participating in team work or group projects which are specifically established to address a particular problem. According to Walsh (2007), Eraut has also identified working alongside other workers as necessary for learning. The benefit of this is that the worker is able to observe and acquire new knowledge. This is consistent with the community of practice theory considered earlier which states that novices learn from experts through observations and imitations. Walsh (2007) further writes that “challenging tasks not only lead to learning but can also increase motivation and confidence when they are well supported” (Walsh 2007: 42). This is in line with Billet’s (1998) view when he implied that activities should be challenging and well sequenced to allow learning to take place. The above workplace learning-enhancers are almost similar to those identified by Zoethout et al. (2008). They say that the performance of a group “depends on a number of factors… such as the number of skills required, rotation schedules and variability in tasks, as well as human factors such as expertise, learning motivation…” (Zoethout et al. 2008: 76). In their study, Jansen et al. (2005) found that
job rotation and social interactions enhanced potential and absorptive capacity (Jansen et al. 2005 cited in Sun and Anderson 2008:146).

Debates on environments which create barriers to learning are also pertinent to this study as they are conceived capable of preventing absorptive capacity development when not taken care of. There are a number of barriers identified in the literature. One of them is the structure of the organization, the manner in which the organization is arranged, that is (see Ashton 2004). For example, the Weberian-type of organizations with bureaucratic structures are not considered conducive to facilitating learning. Expressing the same view, Hong (1999) maintains that “the traditional hierarchy is argued to be deficient at facilitating the process of organizational learning” (Hong 1999: 183). Wegner (2000) expresses this problem this way “ the success of organizations depends on their ability to design themselves as social systems and also to participate in broader learning systems such as an industry, a region or a consortium” (Wegner 2000: 225).
Citing Lam, Lam and Lundvall (2006), taking a broader perspective of the problem, argue that “the knowledge creation and learning capabilities of firms cannot be separated from specific organizational and societal institutions” (Lam and Lundvall 2006:116). They go on to show how education and training, organizational forms and the labour market influence each other and their impact on knowledge. According to these researchers, these societal institutions also influence the way in which the different types of knowledge is viewed in a particular society. They say that:

Education and training shape the social constitution of ‘knowledge’ and thus provides the basis of qualification, work status, and job boundaries. As such, they influence the relative status and importance of the different types of knowledge and the nature of interactions. The type of labour market determine the locus of learning, the incentives for developing different types of knowledge, and define the boundaries and social framework within which learning interacts with collective learning (Lam and Lundvall 2006:117).

The above perspective is considered relevant to this study because it suggests that there are other forces beyond firms that shape or affect interactions within firms and influence the type of knowledge created, explicit or tacit, as well as the value attached to each and what is learnt. This view is consistent with Antonacopoulou’s (2006) findings. In her study on the relationship between individual and organizational learning, she found that instead of the individual managers impacting the organization, it was the other way round. The organization impacted on the managers learning.
What is more, it was not only the immediate context that had a bearing on the learning that took place within the organization, but also the wider context from the industry sector to society. These findings and the influence that societal institutions have on the kind of knowledge a particular society values are significant to the present study because they are thought to relate to the development of absorptive capacity. The latter relies partly on implicit knowledge to facilitate knowledge recognition, absorption and use.

In summary, participating in team work or group projects enhances learning. Employees observe and learn from others, from the more experienced and *vice versa*. This is in line with community of practice theory included in this review. Challenging assignments are perceived as good opportunities to enhance ones learning and knowledge. Rotation of employees is also regarded as an effective way to ensure the acquisition of skills. However, the literature also identifies some barriers or factors that restrict learning such as the organizational structure and issues pertaining to power. The structure of the organization, i.e. the way the organization is structured in terms of positions can have a negative bearing on learning, particularly in bureaucratic type of organizations. The other factors that can affect learning and the type of knowledge valued in an organization have to do with other forces that exert pressure on what happens within the organization. These other societal forces are also relevant as they determine what kind of knowledge is perceived to have more economic value. Next the review will consider two different approaches found in the literature which have been used to study learning and absorptive capacity.
There are two main approaches in the literature which have been drawn upon to either research learning in organizations and organizational knowledge (see Cohen and Bacdayan 1994; Leroy and Ramanantsoa 1997; Hong et al. 2006; Marshall 2008) or to guide learning. This section of the literature review covers both of them, namely cognitivism and practice-based approaches. First the section considers cognitivism before looking at the various brands of practice-based approaches found in the extant literature.

**Cognitivism**

One of the approaches found in the extant literature that has informed studies on learning in and between organizations as well as absorptive capacity, and which is considered relevant to this study, is based on the cognitivist approach. The cognitivist approach can be traced to the work of the seventeenth century French philosopher Descartes. He believed that truth could be discovered through logic and reason (Kolb 1984). According to Marshall (2008), the cognitivist approach is based on information processing models. Jarvis (2006) writes that:

[cognitivism] regards the mind as a function of the brain, so that if we can understand all the inputs and outputs and also the state of operating mechanism, we account for our understanding of mental states. In other words, the brain is seen as a complex computer (Jarvis 2006:35).
The analogy of the human mind with the computer, although considered credible by some writers, is seen as the weakness of cognitivism/functionalism by others. Jarvis (2006) argues that computers are ‘thoroughly rational machines … which…cannot deviate from their programmed logic, but humans are not totally rational’ (Jarvis 2006:36). As such, the cognitivist project’s information processing model is seen as the biggest handicap with respect to its explanatory power: its focus is regarded as narrow because it excludes the historical, social and contextual dimensions, which have been shown to play an important role in learning (see Engeström 2001; Marshall 2008). What is more, cognitivists view knowledge as an object, i.e. something that someone, a trainer or an experienced engineer, possesses and can therefore pass onto others (Cook and Brown 1999; Marshall 2008). Furthermore, cognitivists regard knowledge as individualistic. The literature also tells us that cognitivists focus more on explicit knowledge at the expense of tacit/implicit knowledge (see Cook and Brown 1999). Cook and Brown (1999) demonstrate that the cognitivist approach is unable to explain the learning found in ‘individual and group practice’ (Cook and Brown 1999). Such shortcomings have triggered dissatisfaction with the cognitive approach (see Cook and Brown 1999; Raelin 2007; Marshall 2008).

Despite the above limitations of cognitivism, it should be pointed out that not all writers think that cognitivism has no place in knowledge creation and learning in organizations. Marshall (2008), for instance, argues that although this approach has deficiencies, its wholesale rejection denies researchers an opportunity to understand the role of cognitive processes in learning. Marshall goes on to argue that there are elements of this approach, which if the epistemological and ontological discrepancies are dealt with, can be applied selectively to complement the practice-based approach. Specifically, Marshall (2008) singles out the issue of shared schema,
which is drawn from cognitive psychology, as having a role to play in learning (Balogun and Johnson 2004; Rerup and Feldman 2011). These mental structures, which form as a result of past reactions or experiences in different environments, have also been implicated in informal learning in the literature: they are said to guide action. Furthermore, they are conceived in this study as connected to prior related knowledge, which is also sometimes defined as implicit or tacit knowledge. Prior related knowledge is considered one of the key elements of absorptive capacity because, when combined with intensity of effort, among other things, is perceived as leading to the absorption and use of external knowledge. This is consistent with Nonaka (2007) who claims that tacit knowledge, which we are told forms the basis of prior related knowledge, is instrumental in the construction of knowledge (see discussion on informal learning). However, Marshall (2008) is not the only one who believes that cognitivism has a place in explaining learning. Yaklef (2009) also argues that the role of cognitive processes in learning should not be sacrificed at the expense of social processes. Billet (1996) also cautioned that implicit knowledge was being more favoured than explicit knowledge, implying that both should receive equal attention. The same sentiment is echoed by Sfard (1998) in her use of the two metaphors: acquisition versus participation. Her argument is that both theories, i.e. cognitive and social theories are relevant to understanding learning, meaning that when used alone each is considered narrow in explaining learning.
To summarize, cognitive-based theories conceive cognitive resources as playing a key role in learning and knowledge generation. They compare the human mind to a giant computer which processes information. This is seen as a problem by some researchers who argue that computers operate according to their programming, something that humans do not do. Also, the focus on the human mind does not take into consideration the social and contextual aspects. Critics see all these as drawbacks when it comes to explaining learning. However, not all researchers think that cognitivism has no place in explaining learning. There are some researchers who criticize social learning theories, arguing that they too have limitations; therefore they should be supplemented by cognitive theories, if they are to fully explain learning. Practice-based theories, which are conceived as having the potential to complement cognitive theories, will be reviewed next.

**Practice-based Theories**

The practice based-perspectives are rooted in the works of Giddens and Bourdieu (Contu and Willmott 2003; Feldman and Orlikowski 2011) who are both said to have drawn upon Marx, although some literature do not appear to make the connection with Marx explicit. There appears to be two different strands of research with respect to practice-based learning and both will be discussed here. For Giddens (1984), practices are those social actions that recursively produce and reproduce the structures that constrain and enable action (Giddens 1984 cited in Feldman and Orlikowski 2011: 1241). Feldman and Orlikowski (2011) identified what they refer to as
three key ‘theorizing moves’ to which most proponents of the practice-based perspective ascribe, namely (a) the consequentiality of situated action in the production of social life, (b) the rejection of dualism and (c) the mutually constitutiveness of relations. By relations here is meant that no phenomenon can be taken to be independent of other phenomena (Feldman and Orlikowski 2011). Practice-based approaches acknowledge the social and materials nature of knowing. Furthermore, they take a constructionist view of knowledge and learning: they see knowledge as constructed by the social actors as they engage in daily interactions with each other and their contexts. What is more, practice-based perspectives regard knowledge not as static and individualized, but as revisable and negotiated (Marshall 2008) and community-based (see Contu and Willmott 2003).

Another related stream of research which is perceived to be relevant to this research is that which sees learning as situated in communities of practice (CoPs). This literature also deserves separate consideration as it cannot be subsumed under the practice-based perspective, although they share some commonalities and seem to have the same roots. Their foci are conceived as different in this study. Situated learning, which takes place in CoPs, is regarded as an alternative to traditional learning theories discussed earlier such as cognitive theories which regard individuals as information processors (see the discussion of cognitive theory of learning above). Situated learning theory differs from those earlier theories in that it conceives learning from a broader perspective which includes historical, cultural and social dimensions to which cognitive theories do not pay attention. According to Wenger (2000), communities of practice are the ‘building blocks’ of social learning systems. They are groups of people who share an interest or concern and who constantly interact to use their knowledge to solve problems (Wenger 2000). From the
communities of practice perspective, people learn by gaining access to the knowledge accumulated by a community of practice. What cement the members of such a community together is shared understanding of what their community is about (Wenger 2000) as well as the shared values. Moreover, competency is judged by the ability of community members to contribute to the activities of the community. A community is built via its members’ mutual engagement. Furthermore, community members develop various communal resources and cultural artefacts, such as language, styles, tools and stories which they use (Krishnaveni and Sujatha 2012) and form identities which distinguish them from members of another community. Several studies have demonstrated the effectiveness of CoPs in knowledge sharing. Krishnaveni and Sujatha (2012), for instance, report a number of studies that investigated the role of CoPs in knowledge transfer. They argue that CoPs “foster joint learning that involves tacit and codified knowledge” (Krishnaveni and Sujatha 2012:37). Therefore communities of practice are perceived as useful in the transfer of knowledge and the development of absorptive capacity. Now that the theory of communities of practice has been outlined, the discussion will now turn to criticisms found in the literature levelled against communities of practice theory.

Although the theory of communities of practice is well received among proponents of social learning as an alternative to cognitive based theories, which have dominated research into learning (see Rogers 2011), it has also come under attack in recent years. For example, it has been criticized for giving a wrong impression of harmony and cohesion within communities of practice. Some researchers argue that it is not what it is purported to be. Contu and Willmott (2003), among others, have criticized the brand of communities of practice that is popularized in the extant literature. They argue that some of the radical elements that were part of the initial
thoughts of the originators of the theory, Lave and Wenger, have been deliberately discarded or sidelined in most subsequent studies in order to advance what they term as a “managerialist” agenda. This is seen as an attempt to deny the existence of the social and contextual conditions that are characteristic of capitalist organizations as a result of unequal power relations (see Contu and Willmott 2003). Specifically, critics point out access to resources, including learning opportunities that enable neophytes to move from the periphery of the community to its centre, i.e. opportunities to participate in new work activities of the community as an exercise designed for gatekeeping purposes. According to the community of practice perspective, novices are mentored, although not in the traditional sense, by old-timers, the experts, until they become experts themselves. During such period they perform easy assignments and gradually move to more complex ones. This notion is captured by Lave and Wenger’s concept of legitimate peripheral participation (LPP) (see Lave and Wegner 1991 cited in Rogers 2011). Other researchers also support the idea that communities of practice are not as cohesive and as harmonious as some researchers and commentators seem to want us to believe, but that they are also platforms for power and political games. In other words, they give rise to conditions that create inequality among those who inhabit such communities which create tensions. For instance, Fuller et al. (2005), in their case study also in which they used different methods to generate data, concluded that different work environments provide varied learning opportunities as a result of differential power relations. These researchers call for more research into communities of practice in a wide range of contexts. Additionally, Rogers’s (2011) study based on the concepts of community of practice and workplace learning found a variety of political forces at play. However, Rodgers (2011), also argues that such political games are part of organizational life and not all political activities are necessarily negative.
Furthermore, the assumption underlying communities of practice that all novices and experts are
the same has also been criticized (see. Rogers 2011). Although the literature informs us that
attempts were made in the subsequent publications on the concept of communities of practice to
address the shortcomings detected in its conceptualization, some aspects have not yet been taken
care of. For instance, in the initial exposition, CoPs were seen as social environments in which
newcomers are nurtured under the auspices of experts, where novices gradually move from being
neophytes to becoming fully-fledged members of their communities (see Krishnaveni and
Sujatha 2012). Such a perspective is seen as problematic for it does not acknowledge life before
CoPs. In other words, it does not recognize the fact that when some novices join a community of
practice they already possess a wealth of resources they have accumulated from their previous
social encounters, including previous CoPs (Rogers 2011). Hence, to assume that all novices are
some kind of *tabular rasa* is a failure to appreciate the previous experiences of the social agents.

Related to the above, is the fact that some organizations provide better learning environments
than others. Fuller et al. (2007) refer to such phenomena as “expansive and restrictive” learning
environments. According to this conceptualization of workplaces, learning environments in
organizations are differentiated to the extent that knowledge use and creation are affected. Fuller
et al. (2007) conclude that expansive learning work environments are those that afford their
employees opportunities for reflection and expose them to different work experiences. Such
environments also avoid “making easy assumptions about the complexity and value of workplace
learning based on the employees’ structural position in organizations” (Fuller et al. 2007).
Restrictive learning environments, on the other hand, are restrictive in terms of providing
learning opportunities such as lack of exposure to “off the-job-learning opportunities”. The other
criticism found in some literature regarding communities of practice theory, relates to the fact that it seems to focus more on the community at the expense of the individual.

To summarize, there appears to be two different strands of practice-based perspectives or even more. The two strands reviewed for this research take a constructionist view of knowledge, i.e. they regard knowledge as something that is constructed by the social actor as they interact with their environment. Further, practice-based theories do not regard knowledge as static. The other strand of practice-based theory views learning as something that takes place in communities of practice. According to this theory, people learn from each other, i.e. newcomers learn from old-timers. The research cited reports that communities of practice are an effective vehicle for transferring between and sharing knowledge within organizations. The practice-based theories of learning take a broader view of learning and knowledge in comparison with the other discussed earlier. This is because they are based on social learning theories. The latter take into account the cultural and historical dimensions. In other words, they do not only view learning and knowledge as something that happens in the human head. Therefore, practice based theories are seen in this study as having the potential to contribute to the development of the ability to absorb and use external knowledge. However, practice-based theories have also been criticized for not being able to explain the cognitive dimensions of learning. Consequently, they are seen as not being able to account for certain learning processes, especially with respect to the role of cognitive processes. The other criticism levelled against communities of practice theory is that it seems to give a wrong impression of harmonious relationships. This is seen as misleading because there are unequal power relations in organizations that affect the learning of the various
community members differently. Next the review will focus on social capital which according to the literature plays a critical role in knowledge/technology transfer and knowledge sharing.

**Social Capital**

The concept of social capital is also considered relevant to this research. The term social capital, like many other social science concepts and theories, has been defined in a number of ways. Furthermore, it has been applied in many different fields within the social sciences from sociology, political science to economics (Adler and Kwon 2002). Researchers focus on different aspects of the concept. Most of the literature reviewed associate the term with the Bourdieu, Coleman and Putnam. The trio represents three different schools of thought regarding social capital. However, Bourdieu’s use of the concept is, according to Portes (1998), the most ‘refined among those that introduced the term in contemporary sociological discourse’ (Portes 1998:3). Bourdieu saw social capital as resources arising from relations and leading to the acquisition of human capital and economic and cultural resources (Portes 1998; Edwards 2004).

Nahapiet and Ghoshal (1998) define social capital as the ‘sum of actual and potential resources embedded within, available through, derived from the network of relationships possessed by an individual or social unit and the assets that may be mobilized’ (Nahapiet and Ghoshal 1998:243). Adler and Kwon (2002) define social capital as ‘the goodwill that is engendered by the fabric of social relations’ (Adler and Kwon 2002:17) that individuals or organizations can use to their benefits. Social capital consists of the network that forms the relationship and the resources that can flow through such network (Nahapiet and Ghoshal 1998). These relationships can be
between individual employees or they can be between firms and are created purposefully (Inkpen and Tsang 2005).

According to Nahapiet and Ghoshal (1998), members of such networks can derive several benefits. They are such as access to information and opportunities which would otherwise not be accessible to them. The literature also reminds us that such relationships and networks are key conduits through which knowledge/technology can be transferred (Inkpen and Tsang 2005; Lewis 2007; Chen 2009). For example, Chen (2009) has reported knowledge flow between firms in different countries where such relations exist. Supporting the role of social capital in knowledge transfer, Inkpen and Tsang (2005), in their study of the impact of social capital on knowledge transfer, argue that social capital acts as a channel through which knowledge flows. This means that if there is a good relationship between organizations such a relationship will facilitate transfer of knowledge/technology between the organizations involved. The literature further informs us that knowledge/technology transfer is more effectively transferred when people are involved (Inkpen 2008; Krishnaveni and Sujatha 2012). This is because of the nature of knowledge, tacit knowledge, is embodied in human beings,wired-up in their biological make-up. This makes it transferable through people, i.e. by moving people and bringing them into contact with those who need such knowledge. This is also in line with those researchers who advocate social interaction as an effective means of embedding externally generated knowledge in the recipient organization (e.g. Hotho et al 2011). This infers that there is a need for a good relationship, i.e. a friendly relationship in which people trust each other and one party is prepared to transfer what is seen by some as their most important asset, knowledge.
Social capital is also seen as relevant to absorptive capacity development in the sense that social interaction is regarded in the literature as crucial to the absorption, integration and use of external knowledge (Easterby-Smith 2008; Duchek 2013). Through interaction people share knowledge within organizations. In other words, they learn from each other (see Ombembe 2010). For example, in their study, mentioned earlier, Hotho et al (2011) conclude that social interaction played a major role in embedding and applying knowledge in a new context. These researchers found that in the case organization where there was more interaction, the results were far better in comparison with the organization where there were less interaction. Moreover, in the context of communities of practice, social interactions are reported to facilitate the use of newly transferred knowledge. Krishnaveni and Sujatha’s (2012) study contains several examples of how communities of practice effectively transferred knowledge to new contexts. It can therefore be deduced from these findings that social capital is instrumental in facilitating the flow of knowledge among the different actors, thus contributing to absorptive capacity development (see Hotho et al. 2011). In this context, social capital is also conceived as relevant in sourcing knowledge from outside the organization. There has to be a good relationship, as alluded earlier, between the supplier of knowledge and the recipient company, if the processes of knowledge/technology transfer processes are to be activated.

Remember that the literature (e.g. see Kim 1998; Lewis 2007; Chen 2009) also tells us that external knowledge can contribute to an increase in the knowledge base of an organization, if the organization is able to absorb, integrate and use such knowledge. So, social capital is seen as critical to ensuring the flow of external resources as without such goodwill in this highly competitive business environment the supplier might not want to share their resources with
potential competitors. This also implies that the supplier organization must have a good reason to be motivated to transfer his or her resources. However, it should be noted that social capital is not always beneficial, according to Portes (1998). Although most of the literature appears to focus on the positive effects of social capital, it does have its downside: it can also work against progress. For example, social capital can act as a trap, preventing an organization from exploring new ideas, thus hampering learning (Nahapiet and Ghoshal 1998), which perhaps explains why certain organizations struggle to change from old practices to new ones.

To summarize, social capital offers resources that ensure that the knowledge assets of different individuals and organizations are shared or transferred to other people or entities. Social capital engenders good will without which such resources would not flow. In this study social capital is seen as facilitating relationships between the suppliers of knowledge and the recipient, although sometimes such goodwill is a result of certain interests or motivations based on what resources can be derived from such a relationship at present or in the future. These relationships, which are purposefully created, can be between individuals, units, organizations, including governments. Moreover, social capital is not only seen as beneficial between units or organizations, but also within the recipient organizations. It also facilitates the flow of knowledge between employees in the same organization. This means that it affects even interactions within the organization. Hence, it is seen as critical. The literature shows that employees learn from each other. They observe each other and imitate each other. Such learning requires a good relationship and trust. However, social capital, can also act as a trap because it can have adverse effects on organizations. It is regarded by some researchers as preventing change. Sometimes people want to continue the way they have been doing things. In this respect it can be negative in terms of its
consequences. Knowledge sharing will be considered next as it is regarded as relevant to this study.

**Knowledge Sharing**

Knowledge sharing and knowledge/technology transfer (see above for the review of the latter) are areas of knowledge management. However, it is necessary to make the distinction clear between the two concepts. This will prevent confusion (see Liyanage et al. 2009). Liyanage et al. (2009), make a distinction between the two. Some researchers do not heed the difference. Ombembe (2010), for example, used the two concepts as if they were interchangeable. Ryu et al. (2003), describe knowledge sharing as “a people-to-people process. Furthermore, Liyanage et al. (2009), citing Truch et al. (2002) regard knowledge-sharing as a mutual process, meaning that all the parties engaged in the process of knowledge sharing do so in order to benefit from it. According to Liyanage et al. (2009), the process involves the supplier and the one in demand of such knowledge, but as pointed out earlier, the benefits of such an exchange accrue to all involved. Although there is a distinction between knowledge sharing and knowledge/technology transfer, knowledge sharing has come to be seen as critical in the knowledge/technology transfer process (Nonaka and Takeuchi 1991 in Liyanage et al 2009). Knowledge sharing occurs at the level of individuals.
The literature reminds us that knowledge sharing can help organizational members to learn from each other (see Ombembe 2010). For example, novices can learn from old timers by asking them questions about things they do not know relating to their work. In the same vein, old-timers can also benefit from novices in terms of things the former do not know (see Ombembe 2010). Michailova and Husted (2003), claim that through knowledge sharing members of an organization avoid “redundancy in knowledge production and problem-solving process. Employees often seek to improve their knowledge by asking their colleagues (Michailova and Husted 2003: 59). This means that knowledge sharing can result in learning between the parties involved. As such, it is seen as a way of increasing organizational knowledge. For example, employees can share best practices.

However, the literature has identified several barriers to knowledge sharing. For example, some of the identified barriers relate to the nature of knowledge (Michailova and Husted 2003). And some relate to the behaviours of the knowledge sharers. The latter has to do with issues of power; some people in organizations view knowledge as their source of power. Those who view it in this way might be reluctant to share it with those who do not possess it for fear of losing their source of power. Because of that, knowledge sharing is seen as relevant. This is because in cases where knowledge is regarded as power it can affect the sharing of knowledge among employees, thus affecting the absorption and use of knowledge within the organization.
To summarize this section, knowledge sharing and knowledge transfer are different practices, but both help organizations to benefit from knowledge that they have not generated. Knowledge sharing is a mutual activity, as it benefits all parties involved. Hence, perhaps individuals or organizations would be more inclined to share their knowledge knowing that it is a reciprocal process. Knowledge transfer, on the other hand, is a kind of one way activity in that the knowledge flows from one party to the other. The implication of this is that often the immediate benefit is on one side, although there might be other benefits that accrue to the supplier as well in another form.

**Summary and conclusions from the reviewed literature**

The reviewed literature indicates that external knowledge is critical for technological capability development. Such knowledge is regarded as an alternative route for organizations and countries wishing to catch up industrially. Several studies were cited that show how external knowledge leads to an increase in the knowledge base of the recipient organization. The use of external knowledge in a unit or organization other than the one that originally produced it is what is referred to as knowledge/technology transfer. It occurs through a number of ways: training, routines, people and manuals.

The literature, however, also note some problems surrounding the use of external knowledge: it is not sufficient to be exposed to external knowledge. The recipient organization has to have the ability to recognize, absorb and transform the new knowledge before it can use it. Such ability is provided by two elements: prior related knowledge which is the knowledge that the recipient organization has that relates to external knowledge. Prior related knowledge is also referred to as
implicit or tacit knowledge. According to the literature reviewed, it is action-oriented and comes from doing. It is also implicated in knowledge creation processes. Moreover, the cited literature links it to mental models. The latter are said to help people to make sense of the world and guide action. Furthermore, they have been connected to the ability to recognize, absorb and use knowledge.

The second element that provides organizations the ability to benefit from external knowledge is intensity of effort. It was noted that it is not enough to be exposed to external knowledge. The recipient unit or entity ought to invest time and energy to activate processes that translate external knowledge into knowledge that it can use and which fits in with existing knowledge. It was also pointed out that when external knowledge is transferred to a new environment it is often modified before it is used to create economic value for the recipient organization. However, these processes that lead to the transformation and use of external knowledge are not clearly stated in the extant literature.

However, some studies cited in the literature review also demonstrate that communities of practice are an effective way of embedding external knowledge in organizations. In such communities people share knowledge through observations and imitation. A few other studies have also shown that social interaction is critical to developing absorptive capacity, although they do not spell out how. Some of the literature reviewed criticized communities of practice theory with respect to its conceptualization of communities as harmonious entities. In this regard, it was noted that communities of practice are platforms of unequal power which may impact on learning differently and can also affect the ability to absorb and use external knowledge.
The extant literature is dominated by R & D as the main source of absorptive capacity development, although it also suggests that there are other ways in which absorptive capacity can be developed. R & D, among other things, has been used as a proxy for measuring absorptive capacity. In addition, absorptive capacity research has been using the quantitative paradigm to research social actors who are viewed as different from the subject matter of the natural science. The quantitative paradigm has been noted as having a blind spot when it comes to researching contextual phenomena: it does not capture the contextual nature of such phenomena. This has caused some problems in the absorptive capacity research stream: there is no clarity in terms of how absorptive capacity is developed and the role of the social agent is hidden.

Moreover, the literature shows that in the process of researching absorptive capacity the construct has come to be reified, i.e. it has become separated from the social actor. As a result, it is now seen as independent from human beings, despite the fact that its creation is linked to humans, according to the literature. Hence, there are calls in the literature to investigate the role of the social agent in the development of absorptive capacity. The literature further calls for research with respect to the role of social interaction in the processes that lead to the absorption and use of external knowledge in the new environment. This study will attempt to establish how absorptive capacity starts and the role played by the social agents as well as social interaction. This will be achieved by addressing the question: “To what extent do informal learning and technology transfer impact on absorptive capacity?”
Chapter 3
Methodology

Introduction

In chapter two the main themes relating to absorptive capacity, knowledge/technology transfer and informal learning were reviewed as well as other themes considered relevant. It emerged from the reviewed literature that although external knowledge is regarded as critical to technological capability development, there are problems surrounding the recognition, absorption and use of such knowledge. The main problem identified in the reviewed literature relates to absorptive capacity development. Specifically, it is not clear from the literature how absorptive capacity is developed because, as it was pointed out, the construct has been reified. As a result, we do not know its individual antecedents. This study intended to address these issues by investigating the extent to which informal learning and knowledge/technology transfer impact absorptive capacity.

This chapter presents the research methodology used in this study. It starts with the philosophical underpinnings of the methodology based on the conceptualizations of the phenomena at the centre of the research. Then it moves on to justifying the methodology, including the research paradigm and the case study approach applied to implement this study. The chapter also explains how sampling issues were tackled as well as the ethical implications. Next, the data generation processes are described followed by an overview of the research site, its size, organization and an explanation of why it was considered a suitable site for this research. Before concluding, the chapter outlines the background of each research participant and allocates
each with a pseudonym, facilitating the ensuing presentation and discussion of the findings in the
next chapter.

All researchers are expected to conceptualize the phenomenon they are investigating or
researching. The purpose of such conceptualization is to clarify the nature of the phenomenon
they intend to investigate and their philosophical stance vis-à-vis such phenomenon, that is, its
nature and existence as well as how it can be known. In other words, researchers are expected to
clarify their perspective by addressing both their epistemological and ontological assumptions
upon which their research will be based. This is necessary to enable readers to see the
perspective from which the resulting knowledge has been generated. This is in line with the
thinking that knowledge is perspectival and that universal truth does not exist. To clarify the
perspective-in-use, both ontological and epistemological issues have to be explored and
explicitly stated. Epistemology has to do with how knowledge about the phenomenon under
investigation can be generated (Mason 2002), the methods. Ontology, on the other hand, deals
with assumptions about existence of things in the social world (Bryman 2004): the perspective
from which the researcher views social reality.

There are two main ontological positions in the social sciences: objectivism and subjectivism.
The former assumes that social reality is objective, i.e. it is independent of the social actors’
actions and that it is beyond their influence. This perspective regards social reality as being
governed by natural laws. The object of research then is to discover those laws. The other
ontological position maintains that the social world is a construction based on the social actors’
interpretations; and is not therefore separable from social agents (see Bryman 2004). The above
philosophical positions have congealed into two different research camps (the qualitative and
quantitative paradigms) each of which has pursued its separate development over the years. However, there have been attempts, in recent years, to forge some union between the different research paradigms. This is because some researchers believe that the purported differences are both political and ideological and should therefore be ignored (see Onwegbuzie and Leech 2005). Those researchers supporting the view that the two philosophical positions are compatible sometimes combine them in their studies. Others, on the other hand, are adamant and think that the differences between these two philosophical camps are real and therefore ‘separate development’ should be pursued.

The above philosophical positions have given rise to different research paradigms in line with their conceptions of what exists in the social world and how that which exists can be studied or known, as alluded to earlier. For example, objectivism, which advocates the use of the canons of natural science to discover objective truth, relies heavily on the quantitative research strategy. In pursuit of objective truth, this paradigm supports the notion of value-free research. This is intended to ensure that facts speak for themselves without being contaminated by the social actor. Proponents of this paradigm have developed research tools that are consistent with its underlying philosophical assumptions. At the core of this paradigm is the use of numbers to measure aspects of social reality and to make predictions. Subjectivism, on the other hand, has led to the development of qualitative research. This paradigm, assumes that knowledge about social realities can only be constructed through the interpretations of the social actors, both the researcher and the research participants. Qualitative research conceives the social actor as central in the research process. In other words, it sees the social actor as the medium through which research is conducted (Denzin and Lincoln 2003). Furthermore, according to this perspective,
reality cannot be measured because there will be multiple ones instead of a single one (Giddens 1971). Also, qualitative research relies on language and meanings that the social actors or social agents construct as a result of their interactions with their environment.

The literature on learning, technology transfer and absorptive capacity reveals that there is one dominant paradigm employed in studying absorptive capacity: the quantitative paradigm (see Easterby-Smith et al. 2008; Hotho et al. 2011). This means that most of the previous studies that have ventured into studying absorptive capacity have been positivistic. As such, they side-lined the social actor because, as it was pointed out above, supporters of positivism believe that social reality is independent from the social actors. They employ methodology that is consistent with the assumptions underpinning the scientific model. The latter assumes that the phenomenon of investigation in the social sciences, human beings, behave in the same manner as that of the natural sciences (e.g. atoms, metals and gases). In other words, they are also governed by natural laws. Moreover, in relation to research pertaining to absorptive capacity, quantitative studies have been criticized for failing to explain some of the key dimensions of absorptive capacity, as indicated earlier in the literature review, particularly the social ones. Furthermore, quantitative studies are considered unable to illuminate phenomena in context due to their narrow focus. Therefore, they have several shortcomings and the extant literature in the absorptive capacity research stream has taken note of such drawbacks. As a result, another movement, referred to in some literature as the third paradigm, which criticizes mono-paradigm research, and which attempts to combine both quantitative and qualitative data to study absorptive capacity, has appeared on the scene. The so-called third paradigm is gradually gaining popularity with some researchers (see Onwuegbuzie and Leech 2005; Sedoglavich et al. 2014).
The other paradigm which is relatively new in the absorptive capacity research stream and which is of interest to this study is qualitative research. The nature of the phenomenon that the current study was designed to address was considered congruent with the assumptions underlying qualitative research. This paradigm sees meaning-making as central to human activities (Bryman 2004). The researcher concurs with this perspective. In the researcher’s perspective, learning, technology transfer and absorptive capacity are phenomena that rely on human perceptions and context. This means that they do not exist independently of human experiences. In addition, the construct at the heart of this investigation, absorptive capacity is conceived as being the function of subjectivity in the sense that it is said to be dependent on prior related knowledge. Such knowledge is mainly embodied, meaning that it is carried by social actors, it is implicit. To align the phenomena under investigation and the methodology, this research employed the qualitative paradigm. The latter is underpinned by constructionist ontology and interpretivist epistemology (Bryman 2004) and the researcher assumed that within this study it offered the opportunity to investigate the social realities constructed by the employees of the participating organization. This was considered to be in tandem with both the ontological and epistemological positions undergirding the study based on how the researcher conceptualized the phenomenon under investigation. Mason (2002) says that “one of the logics of some forms of qualitative research is that whatever we seek to investigate, it is likely to be complex, nuanced, situated and contextual” (Mason 2002: 125). Therefore given the nature of the phenomena to be investigated, learning and knowledge/ technology transfer and absorptive capacity, the qualitative paradigm was deemed to be the most appropriate tool to help us gain deeper insights into the phenomena through the perspectives of those involved. Moreover, proponents of the qualitative approach argue that social entities behave differently from natural phenomena and should therefore be studied using
a different logic (Noor 2008). This is because the subjects of social science, people, as mentioned earlier, make meaning and such meaning is influenced by context and values (Denzin and Lincoln 2008). Baxter and Jack (2008) also support the idea that qualitative case study methodology is best suited for researching contextual phenomenon.

Consideration was also given to different approaches to qualitative research. Mason (2002) reminds qualitative researchers to be clear about their strategy or approach. There were several approaches that were examined before the most suitable one was selected. They were ethnographic approaches, interpretivist approaches, biographical and humanist approaches, conversation and discourse analysis and psychoanalytic analysis. According to Mason (2002), interpretivist approaches see people’s interpretations, meanings and understandings as data sources. Moreover, they strive to understand the social world that social actors or agents produce and reproduce in their activities (Blaikie 2000 quoted in Mason 2002: 56).

The approach used in this study lies between the interpretivist and critical humanism which according to Plummer recognizes the capacity of social actors to tap their various resources. Plummer explains critical humanism more eloquently and is therefore worth quoting at length. He explains it in this way:

It [critical humanism] must pay tribute to human subjectivity and creativity—showing how individuals respond to social constraints and actively assemble social worlds. It must deal with concrete human experiences-talk, feelings, actions-through their social and economic organization (and not just their inner, psychic or biological structuring). It must show naturalistic’ intimate familiarity’ with such experiences-abstractions untempered by close involvement are ruled out. There must be … self-awareness by the sociologist of
their ultimate moral and political role in moving towards a social structure in which there is less exploitation, oppression and injustice and more creativity, diversity and equality (Plummer 2001 quoted in Mason 2002: 57).

With respect to the research design, the study employed a case study design (Bryman 2004; Noor 2008). This means one case was investigated (see also Yin 2003), GlobalTech. The entire organization was treated as a single case (see Bryman 2004; Yin 2003). The literature informs us that the case study design has several advantages. For instance, the case study design generates more credible evidence, according to Yin (2003). It was also considered more appropriate for this research because the case study designs’ characteristics allow it to investigate phenomena in context (see Mason 2002). Knowledge, learning and absorptive capacity are conceptualized by some writers as contextual (see Fuller et al. 2003; Eraut 2004; Doornbos 2008).

Dochy and Alexander (1995) also think that one of the elements of absorptive capacity, prior related knowledge, is contextual. Therefore the design and the phenomena under investigation were aligned. Moreover, case study design can deal with how and why questions (Yin 2003). Another advantage of a case study design, which made it suitable for this research, is its ability to deal with “emergent properties of life and the ebb and flow of organizational life”

However, case study designs are also said to have disadvantages. One of its disadvantages is that it generates more work for the researcher in data collection and analysis stages. In addition, it is regarded in some quarters, despite what Yin says (see above), with scepticism (see Noor 2008). Another weakness of case study research, especially the theory-building type is that it may generate a limited and ‘idiosyncratic theory’ (Eisenhardt 1989). This is so because theory
generalizations results from the specific data. In other words, the process of theory building moves from data to theory. Nevertheless, based on the literature reviewed and the objective of this study, the case study design was deemed the best tool for providing a more comprehensive picture of learning, technology transfer and absorptive capacity in the target organization.

Data Generation: Semi-structured Interviews

A schedule for the semi-structured interviews was used to generate data for this study. The schedule was informed by themes gleaned from the reviewed literature, covering issues pertaining to informal learning, technology transfer and absorptive capacity. The second part of the schedule contained questions which also probed into how the research participants went about embedding externally derived knowledge into the organization (see Appendix 1); and how they went about using such knowledge. It should, however, be pointed out that, although the researcher did everything possible to follow the interview schedule, there was some flexibility during the first three interviews in terms of the order in which the questions in the schedule were asked: some of the questions were skipped during the interviews and adjusted as they were felt to constrain the interviews. These three interviews were considered the pilot, as they allowed the researcher to detect problems with the questions and to subsequently refine them. It was noted that in the first three interviews the interviewees did not feel free to talk. This was attributed to unfamiliarity with the interview process, suspicion of the research and issues of power relations between the interviewees and the researcher. To encourage interviewees to talk freely, the researcher spent more time at the beginning of subsequent interviews trying to put the interviewees at ease, for example, by identifying commonalities between the interviewees and
the interviewer. This was done as an ice-breaker. But as the series of interviews progressed within GlobalTech, interviewees in general became more at ease as they probably spoke to each other after the interviews in general and those interviewed assured others that they had no concerns.

One of the things that occurred which the researchers had to grapple with during the interviews was the fact that some of the research participants struggled to communicate in English. This constrained the interviews somewhat: it required a lot of probing. In addition some of the research participants spoke in their mother tongue. Initially, the researcher thought this was a problem, but found out later that it was not. Luckily, the researcher shared the same mother tongue as the majority of the research participants. This enabled the researcher to translate the participants’ perceptions and interpretations of the phenomena under study into English after the interviews, based on the recorded responses to the interview questions. Nevertheless, there was one research participant whose mother tongue the researcher could not speak. This was a challenge as the research participant concerned had no choice, but to use speak English which he did not feel confident enough to use. Although there were gaps in his language, he was generally able to get the gist of his responses across. The data from this particular interview are included in the data set and the interview was not compromised.

All interviews took place on GlobalTech premises. The HR Manager provided the researcher with a venue: a tiny room next to some of the workshops. At times it was noisy as employees went about their daily jobs. The interviews started with a greeting and all interviewees were thanked for agreeing to participate in the study. Then the purpose of the study was explained as described in the access letter. This was followed by an explanation of the contents of the Letter
of Informed Consent. All interviewees were requested after the contents of the letter were explained whether or not they were interested in participating in the research. After consent was granted, all research participants were asked to sign the letter. Before the interviews, the interviewer gave a brief overview of what the interview would cover. This was achieved by going through the two main sections of the interview schedule, namely the section that covered informal learning and the one that dealt with technology transfer. But mid-way through the interviews, it became apparent that the data that was emerging could not address the second aspect of the research question: they indicated nothing about the transfer of know-how. This was contrary to what the researcher initially thought. The researcher’s initial impression was that the entire organization had collaborations with international partners. But during the interviews, it came to light that this was not the case. Consequently, upon hearing from the interviewees that their colleagues at their branch, which was about 400 kilometers away, were more actively involved in collaborations with international organizations, the researcher then asked permission to visit the branch. The HR Manager then contacted his colleagues and within a week the researcher travelled to the branch. A venue was prepared again next to the workshop; the branch had one huge workshop. The same procedure was followed as at the main branch. However, this time the focus was more on the second aspect of the research question, technology transfer, which the researcher felt was not sufficiently addressed by the data from the main branch. In addition to interviews, the researchers also took notes during the interviews. The notes were meant to complement the recorder: they captured observations and the researcher’s reflections on the interview processes. The notes were later written out as memos. The data derived from the memos were analysed and incorporated with those generated through interviews.
**Data analysis Procedures**

The method of data analysis that informed this study drew upon grounded theory, especially the brand advocated by Charmaz (1990), i.e. constructivist grounded theory. Constructivist grounded theory is based on the work of Glaser and Strauss (see Charmaz 1990). These sociologists drew on symbolic interactionism of Charles Cooley and George Hebert Mead (Goulding 1999). As the name suggests, grounded theory derives explanations of phenomenon from the data being generated. Unlike the methods that aim to test theory, grounded theory was designed to drive theory development. The present study borrowed mainly from grounded theory with respect to data analysis. In addition, the study also benefited from coding drawn from grounded theory (see for example, Backman and Kyngäsi 1999; Goulding 1999; Glaser 2002). According to McMillan (2009), the grounded theory approach depends on ‘systematic categorization’ of emerging data and researchers cannot theorize before patterns emerge. The data generation and analysis were performed concurrently: they overlapped. However, the data analysis also relied on Mason (2002). Specifically, it employed interpretative reading of data proposed by this researcher and author in combination with elements of grounded theory, mentioned earlier.
Qualitative data is typically coded either inductively or deductively, commonly referred to as a bottom-up or top-down approach. If codes have been identified \textit{a priori} from other sources then the analyst looks to confirm the codes through the interpretation of the interview. This approach is considered to be deductive. When the codes are identified through the interpretation of the interview transcripts, with codes emerging, the approach is considered to be inductive (see Ryan and Barnard 2008; McMillan 2009). The codes in this study fall in the latter category. They were developed from the data, albeit the researcher acknowledges that with a comprehension of the related literature, similar topics discussed in the literature review will have subconsciously influenced the interpretation of the data (see Ryan and Bernard 2008). The paragraphs that follow provide an account of how the data analysis process was conducted.

The data analysis started with the transcription process. As the researcher listened to the recorded interviews, he became actively engaged in making sense of the generated data. At this stage, while listening to the interviews, patterns began to emerge as the researcher attempted to make sense of the data for transcription. The researcher then printed and read the printed interviews again more than once to name the social pattern grounded in research data (see Goulding 1999; Glaser 2002; Urguhart et al. 2009). According to Glaser (2002), ‘the pattern is named by constantly trying to fit words to it to best capture its imageric meaning’ (Glaser 2002: 24). This naming, also referred to as coding, involved labelling the identified patterns (see also Baxter and Jack 2008; McMillan 2009). The second stage required the comparison of the different categories with each other found during the first stage to see how they related to each other.
Several codes were generated as a result of the processes described above. These processes went on throughout the data analysis process. The codes that emerged were then examined. After that, the ones that were found to be related were fused into single codes. This led to a huge reduction in the number of codes. Finally the main themes that emerged were: learning from others, learning by doing, use of prior knowledge, learning through reflections, use of creativity, making an effort to learn and use of technical drawings. As will be seen later, these themes also represented the main ways in which know-how was generated. These themes and the codes representing them form the basis of the narrative that constitutes the data analysis.

However, the process of data analysis did not end with the generation of the codes. It continued into the writing process and after. Charmaz (1990) captures this part of the data analysis process more clearly when she writes that:

Through writing and rewriting the researcher can identify arguments and problems, make assumptions explicit and sharpens the concepts. Further, the writing process gives the researcher the opportunity to link his or her work with the other theories by integrating them into the discussion and analysis (Charmaz 1990:1169).
The Search for the Research Site

The researcher began the search for the research site a year before the completion of the course work. Initially, the researcher had three organizations in mind, one of which manufactured parts for BMW, Volkswagen and Mercedes Benz. The researcher had encountered information about this company in a local newspaper. The other organization that had been considered was another manufacturing company of which GlobalTech was a subsidiary. This holding company of GlobalTech manufactures a different product. The researcher had weighed its product against those of GlobalTech with respect to knowledge intensiveness. Eventually, partly because of problems in contacting the firm that manufactured automotive parts and the knowledge issue, the researcher settled on GlobalTech, as its business was more in line with the researcher’s interest in technical areas. The other reason was, as mentioned earlier, because of the researcher’s interest in contributing to the country’s industrial capability development as well as the influence of the literature on the East Asian Newly Industrialized countries. In addition, calls from the country’s political leadership also influenced the researcher’s decision. Some of leaders had called for human capital development and knowledge management (see Government of the Republic of Namibia 2004; Angula 2003) as well as findings of several studies indicating that the country is faced with a serious skills deficit (Marope 2004). Moreover, the Ministry of Trade and Industry (MTI) had launched the Industrial Upgrading and Modernization Programme (IUMP) aimed at, among other things, promoting industrial development and facilitating the development of skills in local business organisations (MTI 2010); this programme is spearheaded by the government through its agency, the Ministry of Trade and Industry. All these factors swayed the researcher’s decision towards GlobalTech, also considering the fact that the
automotive parts manufacturing firm was not available, which would have been the first choice. But it should also be pointed out that time was also running out and a decision had to be made to start the data generation process.

**Ethical Issues and Access**

This study was conducted within the framework of the University of Leicester’s Ethics Committee (30/7/2013 15:33:32). The researcher completed the ethics form in which he indicated how ethical issue pertaining to the research would be dealt with. The Ethics Committee scrutinized the contents of the form and returned it to the researcher, requesting further information regarding some ethical aspects of the research they felt needed addressing. Specifically, the committee members were concerned about issues of anonymity. They also advised the researcher to prepare an information sheet for the potential participants, giving information about the research. The researcher designed the information letter containing information about the purpose of the study, how the data would be used and other issues relevant to the potential research participants in the context of this study (see Appendix 3). The researcher had also indicated that he would use pseudonyms to hide the identity of the research participants, i.e. so that the information they would provide during the interviews would not be linked to the research participants. When the committee was satisfied that the key ethical issues they had raised were taken care of, they granted permission for the study to commence.

The first ethical issues to be considered were those bound up with access. For instance, the researcher wrote to the MD requesting access (see Appendix 2). This was necessary to guarantee
access to the research site as entering the site without permission would have been a violation of the ethical code. In the letter, the researcher also explained the purpose of the research and how the findings of the study would be used. The researcher explained that the study was merely for academic purposes and that the relevant findings emanating from the study would be shared with the firm. It was also explained that no third party other than the University of Leicester would have access to the findings. Issues of anonymity at both the individual and organizational level were also explained to the MD. All this was done not only to create trust, but also to ensure compliance with the ethical practices of the researcher’s community. After access was granted, some delays were experienced: the recruitment of research participants could not start immediately as the organizations was still getting ready. However, throughout this period the researcher was cautious not to put the organization or the potential research participants under undue pressure. The researcher waited patiently until one day he decided to enquire about his request to use the organization as the research site. This was when he learnt that permission had been given, but the person who the MD’s office had requested to facilitated the recruitment processes had gone on leave. As a result, some weeks went by before the first meeting with the potential research participants. During the first meeting with the potential research participants, the researcher explained everything from the beginning, that is, what the research was about (Doyle et. al. 2010) how the findings that would be generated would be used as well as the anonymity and confidentiality issues. The researcher also explained to the potential research participants that they would have the freedom to withdraw from the study at any stage should they decide not to continue without being penalized. Since some participants could not read English, the researcher who spoke several local languages, explained the contents of the Informed Consent Letter to all research participants.
The Case Organization: An Overview

This research was conducted at a Namibian firm called GlobalTech, a pseudonym. The firm was established more than fifty years ago and has been manufacturing steel and other metal products for many years in collaboration with leading foreign automotive manufacturers. GlobalTech has two branches. The main branch is situated in the Capital while the other branch is located in another town. The company was nationalized after independence in 1990; and has now become a subsidiary of a government-owned holding company along with three other companies each of which manufactures a different product. In recent years, GlobalTech entered into agreements with other foreign manufacturers of various products as part of its diversification drive. GlobalTech was considered appropriate for this study because of the nature of its business, its operations and the linkages it has with international organizations: it is embedded in several international knowledge networks from which it sources some of its technological knowledge. For example, in recent years it benefitted from externally generated knowledge. It was appointed to assemble imported products and to service them. As result of this collaboration, some of its personnel had travelled overseas to receive training in assembling and servicing the new technology. Upon their return, they had shared what they had learnt through different means with their colleagues who had not had the opportunity to receive training.
GlobalTech is headed by a Managing Director (MD) who is appointed by a board. The MD acts as the accounting officer and is in charge of overseeing the company’s day-to-day operations and provides leadership. The board, which also appoints the MD, is mandated to govern the company through the formulation ‘of broad policies and objectives’ to ensure sustainability and accountability to the public and stakeholders. The company has a hierarchical structure with power distributed according to positions in the structure. Those at the lower rungs have less decision-making powers than those at the top. The company employs about 110 people most of who work in workshops, manufacturing different steel and other metal products. The majority of the workers have not received formal training: the company has tended to depend more on workplace learning. However, in recent years, it has recruited a handful of graduates from vocational training institutions. The different categories of workers who participated in this study were boiler-makers, auto-electricians, diesel mechanics, painters and welders. The work space in the workshops is divided according to the different functions: those who do related work share the same work station.

The Sample

Because this study was underpinned by qualitative research philosophical assumptions which conceive social reality differently, as mentioned above, from most previous studies, it used a sampling logic that was consonant with such assumptions. Most previous studies, as indicated earlier, had been quantitative. This means they had been underpinned by positivistic assumptions (see Bryman 2004). For example, with respect to sampling they were interested in making generalizations and establishing correlations through statistical manipulations, measurements. Moreover, they were interested in the validity of the instruments they used to generate data.
Unlike previous studies, this study was interested in the meanings that the research participants made as a result of their interpretations of the social realities they constructed. Also unlike previous studies, the present study was underpinned by assumptions that see knowledge as co-constructed by social actors, the researcher and the research participants as they interact. Therefore the sampling logic used in this study was informed by such assumptions. The study applied purposive or theoretical sampling (Mason 2002; Bryman 2004), meaning that participants were selected based on the understanding that they would help address the purpose of the study. After the initial meeting at which the purpose of the research was explained including the rights of the research participants, one potential research participant volunteered to be interviewed first and he recommended others who he felt would be able to contribute to the study. Those recommended were then approached and a list was drawn up for the first week, albeit it had to change several times. This was because some of the people on the list were not available on the day on which they were supposed to be interviewed: at times the potential participants went in the field, i.e. to work outside the company. Consequently, replacements had to be found. This compelled the researcher, in a few cases to find people who were interested in participating in the study even if they were not directly involved with technical work such as painters to make up the required sample number (see table below). The number of interviews that the researcher envisaged to conduct was twenty. This number was exceeded by three interviews, which acted as some kind of pilot study. The first three interviewees are not included in the table below.
### Research Participants

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Job Title</th>
<th>Yrs with Comp.</th>
<th>Age</th>
<th>How know-how was acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Axarob</td>
<td>Boilermaker</td>
<td>10</td>
<td>30-40</td>
<td>Formally &amp; informally</td>
</tr>
<tr>
<td>2. Hangula</td>
<td>Welder</td>
<td>3</td>
<td>30-40</td>
<td>Informally</td>
</tr>
<tr>
<td>3. Dantago</td>
<td>Auto-electrician</td>
<td>5</td>
<td>30-40</td>
<td>Informally</td>
</tr>
<tr>
<td>4. John</td>
<td>Assistant Manager</td>
<td>28</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>5. Peter</td>
<td>Welder</td>
<td>3</td>
<td>30-40</td>
<td>Informally</td>
</tr>
<tr>
<td>6. Tobias</td>
<td>Foreman–production</td>
<td>31</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>7. Timo</td>
<td>Painter</td>
<td>8</td>
<td>30-40</td>
<td>Informally</td>
</tr>
<tr>
<td>8. Gerry</td>
<td>Foreman</td>
<td>17</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>9. Chris</td>
<td>Welder</td>
<td>4</td>
<td>20-30</td>
<td>Informally</td>
</tr>
<tr>
<td>10. Phillip</td>
<td>Assemb. Assistant</td>
<td>3</td>
<td>30-40</td>
<td>Informally</td>
</tr>
<tr>
<td>12. Ambrose</td>
<td>Diesel Mechanic</td>
<td>5</td>
<td>30-40</td>
<td>Formally &amp; informally</td>
</tr>
<tr>
<td>13. Otto</td>
<td>Diesel mechanic</td>
<td>5</td>
<td>30-40</td>
<td>Formal &amp; informal</td>
</tr>
<tr>
<td>14. Hoebeb</td>
<td>Boilermaker &amp; Mech.</td>
<td>20</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>25. Andre</td>
<td>Machine operator</td>
<td>2</td>
<td>20-30</td>
<td>Formally &amp; informally</td>
</tr>
<tr>
<td>16. Harris</td>
<td>Boilermaker</td>
<td>20</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>17. Tomas</td>
<td>Painter</td>
<td>25</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>18. Siya</td>
<td>Boilermaker</td>
<td>18</td>
<td>40-50</td>
<td>Informally</td>
</tr>
<tr>
<td>19. Felix</td>
<td>Foreman</td>
<td>40</td>
<td>50-60</td>
<td>Informally</td>
</tr>
<tr>
<td>20. Walter</td>
<td>Boilermaker</td>
<td>31</td>
<td>40-50</td>
<td>Informally</td>
</tr>
</tbody>
</table>
However, it should be pointed out that halfway through the interviews, the researcher experienced saturation. This was a point when no new themes were being generated through the interviews, particularly with respect to the first part that dealt with informal learning. At the same time something that the researcher had been suspecting became clearer: that the data generated up to that point was not addressing the technology transfer and absorptive capacity aspects of the study. Consequently, the researcher enquired from some of the participants about the activities at the branch and that was when he decided to continue the data generation process at the branch which he had been informed was more actively involved with international organizations in technology transfer. This was in line with the kind of sampling, theoretical sampling, employed in this study. Goulding (1999) supports this view when she, in relation to grounded theory which this study drew upon, states that:

Sampling is not determined to begin with, but is directed by the emerging theory. Initially, the researcher will go to most obvious places and the most likely informants in search of information. However, as the concepts are identified and theory starts to develop, further individuals, situations and places may need to be incorporated in order to strengthen the findings (Goulding 1999: 9).
Summary and Concluding Remarks

In this chapter, the background of the research site was presented including the relations that the organization has with international partners and the size of the organization. The discussion then moved onto the different paradigms used in the social sciences, the quantitative paradigm, the mixed method research and qualitative paradigm. Each of these paradigms was examined in terms of their suitability in relation to the phenomena under investigation. This was followed by a discussion on why the qualitative research paradigm was seen as suitable to investigate informal learning, technology transfer and absorptive capacity. This discussion also touched on previous studies which investigated absorptive capacity and identified weaknesses in the present literature with respect to the methodology used. Problems that the current literature on absorptive capacity has identified, discussed in the literature review, were also reiterated.
Chapter 4
Findings and Discussion

Introduction

This chapter presents the findings and discussion. It is divided into several sections; the introduction explains how the chapter is organized and what to expect from it. The introduction is followed by an outline of the research site providing information about the structure of the organization, management, and departments. Furthermore, this section also includes arrangements regarding human capability development within the organization before presenting both findings and the discussion, which form the core of the chapter. The findings are based around the main themes that emerged from the data analysis and consist of the research participants’ perceptions and experiences. The themes form a basis for the ensuing discussion in the subsequent section. The discussion focuses on how the findings are similar to existing studies and how they are different, thus providing a basis for the concluding chapter.
The present study was carried out at GlobalTech. The company is headed by a Managing Director (MD) who is appointed by a Board of Directors. Some of the responsibilities of the MD are, among other things, to oversee the company’s operations, leadership and overall corporate governance and serve as an accounting officer. The Board of Directors, on the other hand, ‘ensures continuity’, makes sure that the company has sufficient resources. The Board also accounts to the public with respect to the organization’s services and products. In addition, it appoints the Managing Director and supports him/her. Apart from these two different layers in the organization structure, there is a Human Resources Department which seems to have a dual role: it is responsible for human resources and finance simultaneously. The Human Resource Manager is also responsible for finance and both functions are performed under the same roof. There are also other managers such as the Marketing Manager, Production Manager, General Manager, Quality Controller and numerous foremen. Next in the organizational structure are people in charge of workshops. These are followed by the workers who belong to different categories. Power in the organization is distributed according to positions in the organizational structure, meaning that those at the apex have more power than those who occupy the lower rungs. The company has a branch in another town, which is about 400 kilometers away. The branch mainly assembles imported technologies, while the main branch engages mostly in manufacturing and modification of products, including externally sourced products. The branch is headed by a manager who reports to the main branch.
In its advertisements on the company Website, the company proclaims that it attaches great importance to training and to a competent workforce. However, as will be seen in this study, apart from the training that some GlobalTech employees received from its foreign partners, the data shows that most of the learning seems to take place informally, meaning that formal efforts to cater for the employees’ needs in practice are minimal. It seemed that most employees who participated in the study are left to their own devices with respect to human capital development. The only training that was mentioned apart from the one referred to earlier that took place as part of the technology transfer package at the branch, was in the field of management. However, one of the research participants said that he had attended management training that was offered by foreign consultants. But another research participant also said that they attended training that was organized by the organization at a local training institution. This training, according to him, was for certification purposes only because they already possessed the skills the training was designed to impart. After the training, they were evaluated and certified. The research participants saw certification as important because some of them at the end of the interviews raised the issue of low pay due to lack of qualifications. They said that they wanted salary increment because they generate a lot of income for the organization, but their salaries were not commensurate with the work they do. In general, it would be fair to say that, not considering the training from the technology suppliers which mostly took place at the branch, most research participants at the main branch did not think that they were afforded sufficient opportunities to acquire skills through training. This is evidenced by the fact that some of them said explicitly that they wanted to be given opportunities to increase their know-how through training.
Empirical Findings

The coding of the transcribed data focused on data segments considered relevant to answering the research question. Several codes were generated as a result of the initial reading of the transcripts. The codes were then examined and the ones that were found to be related were fused into a single theme. This led to a reduction in the number of codes. Finally the main themes that emerged were as follow: learning from experienced people, learning by doing, use of prior knowledge, learning through reflection, use of explicit knowledge, making an effort to learn, use of subjective knowledge and creativity. As will be seen later, these themes also represented the main ways in which know-how was generated. Next the findings are presented in sections based around the key themes.

Learning from Others

One of the main findings of this research relates to learning from other people. Most interviewees revealed that they learnt from other people while working at GlobalTech. In other words, they acquired technical knowledge through working with experienced colleagues, people who had been with the firm longer; they revealed that they learnt in different ways. Most of them revealed that they learnt mainly through observations and demonstrations, whereas others mentioned that they learnt from their experienced colleagues by talking to them about their work. Furthermore, some also indicated that when they encountered problems related to their work with respect to how to do something, they approached their experienced colleagues for assistance and guidance. Sometimes they received feedback on their work. Also sometimes they did the
work and their superiors, who were more experienced, evaluated it. Such feedback from the ‘experts’ was sometimes used as a basis for learning and improvements. The research participants further said that they learnt to produce different kinds of products. However, the researcher was surprised during the interviews at the main branch to learn that some of the research participants had no technical knowledge relating to their jobs when they started working at GlobalTech: some research participants started working as assistants. They learnt by observing how their experienced colleagues did their work. And as time went by, they learnt through trial-and-error and experimentations. This kind of learning which was reported by the majority of the research participants is reflected in the comment made by an assistant manager. This employee arrived at GlobalTech with neither technical training nor prior related knowledge which is considered to form the basis of absorptive capacity, but was able to observe the old-timers and learn from them. When asked how he went about learning, he said that:

When I started working here, I worked with someone who was more experienced. We manufactured hard truck heads. First, I was just working as an assistant, giving tools to my more experienced colleague such as the cutting torch, measuring tapes, and others. I then started using those tools myself and welding brackets on the chassis, and preparing the chassis for the installation of engines. (John)

This kind of learning was reported by several research participants who joined GlobalTech without technical knowledge, but who were able, out of their own efforts, to learn to manufacture different products. Surprisingly, one of the research participants, for example, was not only able to learn one skill, welding, but also taught himself how to repair brake systems of trucks. And he also works as a brake system specialist. According to him, he acquired both skills in the same
manner, i.e. he never attended formal training: he learnt both skills while working with others, albeit using different learning methods such as observations, imitation and receiving feedback from his more experienced colleagues on his work. He even boasted that as a result of learning in this way, he is now able to manufacture steel products on his own and repair the brake systems of trucks independently. Furthermore, he said that when new people join the company he shows them how to do the work properly, especially novices who come from formal training institutions who he said come to them with very little practical knowledge. Moreover, he said that sometimes he shares his expertise with his colleagues when working with them. They learn from him and when his colleagues go and work with others, the others also learn from them and that is how they share know-how among themselves. He also felt that the knowledge he has acquired so far helps him to tackle new assignments because when he works on a new task he learns more from doing the task; and sometimes he uses that knowledge in other future assignments. This provides evidence that learning while working is a useful way of developing the ability to absorb and utilize knowledge.

Those research participants who had attended formal vocational training, who were in the minority, also indicated that they also learn while working mostly from old-timers. Therefore, learning from others in a community of practice is not confined to those without formal vocational training. It was perceived as a common way of learning by almost all research participants regardless of whether or not they had received training prior to joining GlobalTech. This is because the recipients of formal training also indicated that they too learnt from their colleagues who had been with the firm longer than themselves, including those without formal training and qualifications. This is not surprising because some interviewees who attended
formal training at both GlobalTech branches mentioned that they did not learn all the practical knowledge during their formal training. From their perspective, this was because their formal training contained more theory than practice. Besides theory, they also pointed to the fact that at times, as workers, they were required to produce new products, i.e. products they had not manufactured before. As such, there was always something new for them to learn, despite the fact that they possessed certified knowledge. The following response from one of the boilermakers at the main branch, who at one point worked as a supervisor, illustrates this point:

    I worked with this old man who knew how to operate the machines. I said to myself: Ok let me use him to roll the metal sheets. It was a big sheet. I think it was six meters. I told him that he knew how to operate the machines, I didn’t. He showed me the functions of the different buttons on the machines and how to use the machine. (Axarob)

This finding illustrates that learning from others was not confined to those with no formal training, but that it was a phenomenon that occurred wherever new activities were involved regardless of whether the research participant had formal training or not, as said earlier. The significance of this finding to the present study is that it demonstrates that the ability to learn and use new knowledge is also constantly enhanced when new tasks are involved. In addition, the finding also tells us that even those with formal training also learnt while working and that they too learnt from those without formal training.

Interestingly, some research participants described learning from experienced colleagues as stealing. For example, when asked how he went about learning how to manufacture a certain product, one of the experienced formally trained boilermakers, said that: “I’m someone who likes to learn and someone who is also quick to steal your ideas, especially when it comes to jobs
related to the work of a boiler maker.” (Axarob) This research participant was not the only one to use a metaphor to describe how he learnt. Another boiler maker said: “I observed how others did the work and stole their know-how. I observed every step, how they did their work so that I could do it myself next time.” (John)

However, it is worth noting that not all research participants said that they had acquired technical knowledge at GlobalTech. Some arrived with technical background acquired in other organizations, where they worked before joining GlobalTech, while others had learnt through other informal means outside GlobalTech. As a good example, two of the research participants said that they had learnt from their brothers. One of them mentioned that his brother worked for a local firm and had taught him at home after work, whereas the brother of the second respondent owned a welding workshop which manufactured a variety of products. Despite the fact that learning took place in different locations, the methods of learning employed turned out to be the same as those used by their colleagues who had acquired their technical know-how at GlobalTech. According to these research participants, they learnt through observations, demonstrations and imitations, just like their counterparts who learnt at GlobalTech. But, interestingly, even those who possessed some technical knowledge upon joining GlobalTech revealed that they too, like their counterparts who had undergone formal training before joining the company, continued to learn in their new working environment: they indicated that they were continuously acquiring new know-how from others, just like the their colleagues with formal training mentioned earlier.
In addition, it should be pointed out in connection with this theme, that some of the research participants recognized the importance of having a close relationship with those who possessed technical knowledge in facilitating knowledge absorption and use. One research participant said that he had to be very close to his more experienced colleague because he wanted to get everything out of him in terms of how to do the work as a formally trained boilermaker. He thought that if he were not close enough, he would not learn as much as he should. By being close, according to his explanation during the interview, he meant having a friendly relationship with his colleague so that the latter could become open to sharing his knowledge with him.

What also transpired from the data that also relates to learning from other people is that some research participants seemed more motivated to experiment with things than others. This can be seen in one of the research participants’ disposition when he was given an assignment to manufacture a product he had not produced before. Although he was not sure how to go about the job, he did not refuse to tackle the assignment. He accepted the assignment, probably not wanting to show that he was not up to the task, i.e. to give his boss the impression that he was not capable of doing the job. But justify his approach to work, he indicated that he found the assignment interesting and wanted to put his creativity to test. Apparently, he recalled things he used to make with his own hands while in school and got motivated by such thoughts. According to him, he wanted to show what he was capable of. He even directly said that his boss liked to give him assignments because perhaps he had discovered his enthusiasm and his willingness to take on new assignments. This research participant, who was one of the few lucky ones, to have received formal training, portrayed some of his colleagues as shy sometimes when it came to starting new jobs because, according to him, they were scared of being blamed if things went
wrong. Consequently, some of his colleagues wanted to see who was going to start new assignments because they did not want to be blamed. Such a work climate suggests that some employees might be scared to experiment, if there is a blame culture at work. On the other hand, the disposition to experiment also suggests that individual motivations are also crucial in influencing the extent to which individuals are willing and able to learn to expand their knowledge base. This can be seen in what one of the research participants, a boiler maker, said:

*When we started building trailers, first we did the base. The base is the most difficult part. If you make a mistake, then the whole product will be spoiled. When I started I didn’t know how to do it. It was ... how should I put it? It was very interesting. One day the foreman just called me in and asked me if I could do the job. I wasn’t sure, but I told him that I’d try. Sometimes when I wasn’t sure I asked my foreman. I stayed very close to him because I wanted to get everything out of him. I made the first trailer and the foreman said it was Ok. Then I cut materials for 15 trailers. (Axarob)*

This finding shows that some research participants were more predisposed to experiment than others. This can be interpreted as meaning that there might be differences in terms of chances of learning with those inclined to try out things standing a better chance of learning more, thus increasing their chances of generating more knowledge than their colleagues who were less inclined to take such chances. This has implications for the development of absorptive capacity as it means that those employees who do not shy away from responsibilities tend to learn more and therefore stand a better chance of enhancing their ability to absorb and use new knowledge from others. What is more, the finding points to the significant role played by individual social actors in developing absorptive capacity: it points to the origin of absorptive capacity in a way
since it reveals differences in individuals’ dispositions as a crucial factor in the process of absorptive capacity development, thus providing the missing link between the individual and absorptive capacity. According to the literature, the role of the individual social agent in developing absorptive capacity has been eclipsed by the use of proxies in the extant literature (see literature review) which is why many researchers in this stream have been calling for research into the individual antecedents of the construct. Moreover, although the literature does not clearly indicate how the individual generate absorptive capacity, it does unanimously agree that absorptive capacity starts with the individual before it becomes organizational.

Also, in relation to this theme, one research participant revealed that he started with easy jobs. Further probing enabled the researcher to find out why this was the case: the research participant said that complex jobs were reserved for the more experienced employees, the old-timers. According to this research participant, the organization does not allow novices to work on serious assignments because some clients are very demanding in terms of quality. Therefore the organization only permits experienced employees to work on such assignments. Novices are gradually moved on to more complex assignments, as their know-how increases, under the guidance of their experienced colleagues. He said that: “When I started learning, they didn’t give me hard assignments; they gave me easy ones. The more complex assignments were reserved for the more experienced colleagues.” (Hoebel)
In terms of knowledge/technology transfer, most research participants said that they acquired external knowledge through demonstrations by their suppliers. According to the research participants, such demonstrations took place at GlobalTech and overseas. A few selected GlobalTech employees went to attend training at the supplier company. After the demonstrations, the attendees then returned to GlobalTech to share their newly-acquired know-how with other employees within the organization to enable them to use such knowledge in performing their work. According to the research participants (both those who attended and those who did not attend training) embedding know-how within the organization after training happened mostly through working together in teams. But at times they initially had demonstrations. Such demonstrations were followed by working together and interacting with each other. Some interviewees explicitly indicated that they used the same strategies, i.e., observation, imitation and practice to acquire new knowledge from their international partners through their fellow employees. A concrete example they gave of how knowledge/technology was transferred at GlobalTech was that of new externally generated know-how regarding implements that were brought in from overseas. The employees had not dealt with this technology before. It was their first time to have such technology. Some GlobalTech employees attended training on how to assemble and service the equipment. Upon their return, they shared their training experiences with their colleagues through demonstrations. However, most of what they transferred to their colleagues was shared with the different teams through social interactions and by working together in teams. Most interviewees indicated that they were able to embed such technical knowledge in the organization and use it. The processes used to transfer external knowledge to GlobalTech can be seen in what one of the diesel mechanics said:
The knowledge that I gained from training overseas was shared by working in teams. For instance, with respect to changing oil filters we worked together with those who didn’t go for training. In the process, they observed how we did it and as time went by, they also learnt. They improved through doing it many times. When you encounter something every day, you learn. (Victor)

Additionally, to embed and use external knowledge in the organization, some interviewees revealed that they have a system of learning which enables them to rotate from one work station to another. They commented that the main purpose of this system is to enable them to learn different types of skills with respect to externally sourced knowledge so that when one of them is absent work would continue. One of the research participants, an assistant manager, explains the manner in which their rotation system works in this way:

Sometimes we rotate among different work stations, i.e., one day you are working at this work station. The following day you go to another work station. We do this so that when one person is absent one day the work will not come to a standstill. As a result, of this rotation we have acquired many different skills. (Phillip)

Learning by Doing

The other main theme that emerged from the findings relates to learning by doing. All research participants indicated that they learnt a lot while engaging in work activities and not just from others, but also by engaging in the actual work activities; they reported that they gained new insights into their work as a result of doing. Such insights did not only lead to improvements of their products, but also in terms of how they worked, i.e. the work processes. For example, some
research participants said that the more they worked on something, the more knowledge they generated and accumulated. Some of the knowledge they generated in this manner was stored for future assignments. It formed the basis for implicit knowledge, also referred to as prior related knowledge, depending on the task at hand. Some said that the first time they worked on something new, they found it difficult because they had not done it before, but once they had done it several times, it became easier: they learnt. Learning from doing was also mentioned not only by those research participants without formal training, but even those who had undergone formal training. They too said that they learnt while working, not only from other people as mentioned above, but also from the act of doing per se. The learning that comes with doing that many research participants mentioned is encapsulated in the following comment by one of the boilermakers:

The way you’ll weld today is not the way you’ll weld tomorrow, and the way you’ll weld this year, is not the same as you will weld next year. There are always improvements which come from working on something. (Hoebel)

Use of Prior Related Knowledge

Prior related knowledge was considered by some research participants as playing a role in their acquisition, use and creation of new knowledge. Some research participants said that they relied on such knowledge to not only create new products, but also to modify existing ones. They indicated that they drew on their experiences of work they had done before to improve and modify products. In the process of knowledge application, they generated new insights which they used. The benefits of prior related knowledge are illustrated by one of the diesel mechanics as follow:
[...] when you are faced with challenges, you learn a lot from them and the remedies you use. And next time when you encounter similar problems, you draw on those experiences to solve new ones. For example, we once faced a problem with one of the tractors. Its steering wheel wasn’t turning: it was hard. We traced the problem until we detected its source. Later when we encountered a similar problem, we drew on the insights derived from our first experience. (Victor)

...although, there were slight differences in terms of designs, the principles were the same. Therefore, there was no problem. I was able to work out how the generator operated in the newly acquired tractors, drawing from my previous experiences with similar parts. As a result, we tried different solutions to resolve the problem. Eventually, we managed to resolve it. (Victor)

The above findings also illustrate the role played by prior related knowledge in the absorption and use of externally generated knowledge. In this particular example, the research participant drew on his knowledge of the product based on his experiences with other similar parts; and through problem-solving-like processes he was able to resolve the problem. This suggests that prior related knowledge facilitates knowledge transfer, which at its core basically involves learning. For example, prior related knowledge helped in the identification of parts and enabled the research participant to develop new insights in the act of doing that led to the resolution of the problem. This is consistent with the notions of generating knowledge while applying knowledge and learning in the stream of activity. Therefore, it can be concluded that an individual’s existing knowledge partly contributes to the integration and use of externally
sourced knowledge. However, prior related knowledge is not sufficient to ensure absorption and use of external knowledge it has to be underpinned by an individual’s motivation.

**Use of Reflections**

Reflecting on practice was also mentioned by many research participants as critical to learning informally. Several of them indicated that at times they reflected on the work they had done before or products they had produced. Sometimes they reflected on the mistakes they had made in the past and drew lessons from such mistakes. But at times, they just drew on the knowledge they employed on previous tasks to solve current problems or to improve or modify products. In the process of doing so, they generated new insights which helped them to expand their existing knowledge base. This resonates with the process of generating knowledge while working or knowing in action. When asked how they went about reflecting on their work, one of the research participants had the following to say:

*You say to yourself: yesterday I did it this way, today I’ll do it differently. For example, when I started welding, I often had to use a grinder afterwards to make the surface smooth, but as time went by, this was no longer necessary: there were improvements.*

*(Hoeb)eb)*

*I reviewed the work I did to see how I performed and worked on the mistakes I made.*

*(Hangula)*
The above finding suggests that working on something helped the research participants to generate insights that led to the improvement of their work. These insights came from doing and could be construed as representing new knowledge and learning. They were presumably what some other researchers refer to as knowledge generated in the stream of activity mentioned in the literature review. Therefore, the findings are considered relevant to addressing the research question, as they do not only encapsulate the changes that occurred as a result of the insights gained from working on something, but also underscore the role of the social agent once again in the process of knowledge creation.

Moreover, the finding also underlines the role played by reflecting on practice, i.e. looking back mentally on previous performances and drawing lessons from them to improve current practice. Such previous experiences represent prior related knowledge which the research participants said they drew upon. Prior related knowledge is seen as critical to absorptive capacity development, as mentioned earlier, because it is considered an important ingredient in the absorption and use of externally generated knowledge. According to some research participants, prior related knowledge helped them to use new knowledge. For example, some of the diesel mechanics, at the branch, indicated that they found such knowledge useful in working on the imported technology as it helped them to deal with the problems they encountered.

Some research participants also regarded the use of cognitive resources useful in the learning process while working. They indicated that at times they relied on such resources to remember things or to note them in their heads. This way of learning, according to some research participants, helped them when dismantling components, especially those research participants who worked in the repair workshops. For example, some of them said that when removing parts,
they noted the positions of the different parts in relation to other parts as well as their characteristics so that they could not forget them or mix them up. The use of cognitive resources to aid learning is captured by one of the mechanics, who, when asked if he thought that the know-how he had helped him to tackle new assignments with respect to modern trucks he had not worked on before. Apart from being a boilermaker, he also specialized in repairing break systems and this is what he said about using his cognitive resources to note things:

Yes, indeed. Because I knew that sometimes if I remove an old part I had to replace it immediately before I forgot where it came from. These new trucks, unlike the old models, are very complex: they come with fittings and inserts. In fact, they have many small components and sometimes I record them in my head, but sometimes I use pencil and paper to draw them to help me remember where they came from. (Hoebeb)

Use of Creativity

Some research participants revealed that at times their own creativity aided them in working on new products or assignments. Several research participants mentioned that sometimes they relied on their own creativity to modify existing products. And while working, they generated new insights which could lead to further modifications or sometimes they came up with their own models. According to some research participants, working on such models also led to further knowledge generation and learning. One of the boilermakers expressed the use of creativity in this way: “For some of the things we rely on our own creativity as individuals to come up with our own models or to modify existing products/ knowledge.” (John)
For some of the things we rely on our own know-how as individuals. You come up with your own ... or you modify the existing product that is how know-how is. For instance, we used to make huge trucks, but now we have reduced their size because the bigger versions are no longer in demand. Besides they involve a lot of work. (John)

This finding encapsulates the reliance on prior related knowledge, which some research participant used as a basis for modifying existing knowledge or products. As pointed out earlier, such knowledge has a role to play in the absorption and utilization of externally derived knowledge. Prior related knowledge could also be the basis for creativity, mentioned above. In other words, creativity, among other things, could also feed on the knowledge resources accumulated which becomes part of prior related knowledge. Although creativity is seen as common in terms of its potential, it is associated with certain personalities, meaning that like the disposition to experiment displayed by some research participants, some individuals tend to be more creative than others. This is significant to this study because it does not only point to the influence of individual personality in developing the ability to absorb and use knowledge, but also to the role of the individual social actor in the development of absorptive capacity, i.e. the development of abilities to absorb and use externally generated knowledge.

Making an effort to learn

Some research participants indicated that they made an effort to acquire knowledge. They saw learning as requiring some kind of investment in terms of energy and time on the part of the learner. Such effort was visible in some of the research participants’ actions who searched for opportunities to learn and use knowledge. These research participants said that when they arrived at the company they had no technical know-how: they started out working as assistants. One of
the research participants said that as time went by, he got tired of giving tools to others and decided to acquire know-how to secure his job. Such efforts are evidenced by the comment of one of the assistant managers who said that:

When I started working here, I was working as an assistant, giving tools to others who were more experienced. Then one day, I got tired and I said to myself: Is this what I want to continue doing, giving tools to others to do the job? I then started teaching myself to weld; I did this because I wanted to keep my job. (John)

Again as it can be seen in the above quotation, the individual social agent plays a major role in the acquisition and use of knowledge. As earlier stated, some research participants were more inclined to push themselves harder to acquire knowledge than others. In other words, there appeared to be differences in the efforts that various individuals made to learn. And the explanation for such effort seems to lie in what the research participant is interested in and not necessarily in what the organization wants to achieve. This finding, with its focus on the individual, provides new insights in terms of absorptive capacity development which, as the discussion will show, help us understand the individual antecedents of absorptive capacity. The literature tells us that individual antecedents of absorptive capacity development have been ignored. Given the focus on the individual social actor, the finding can also be seen as moving us forward in not only understanding how absorptive capacity is developed, but also in comprehending some of the sources that drive its generation. In doing so, the finding clearly contributes towards addressing the central research question in that it shows that absorptive capacity development partly depends on individual motivation and effort.
Use of technical drawings

Technical drawings were also mentioned by some interviewees as mechanisms for transferring explicit knowledge. These were used in the manufacturing of new products. The drawings represented explicit knowledge. Some research participants said that in the process of applying explicit knowledge to produce products some of which they had not produced before, learning also took place through the generation of new insights which added to their knowledge base, as one of the foremen illustrates:

*Sometimes we use drawings. We look at the drawing then start doing and while working we also learn, you see where to improve, but there are always some people who guide you, people with know-how who have been with the company longer*” (Tobias).

Another research participant at the branch who deals with imported technology also revealed that one day they encountered a technical problem regarding one of the machines during the assembling stage, but they could not consult the suppliers. Fortunately, they accessed the suppliers’ Website and were able to find drawings, which helped them to resolve the problem. When asked during the interview if they communicate with the suppliers for assistance, one of the assembling assistants said that:

*I don’t personally, but my colleagues do. But I do remember that we once had a problem with one of the machines. We did not have the solution to the problem. As a result, some of my colleagues searched the Internet until they found the suppliers’ Website which provided them with the information they were looking for. The drawing they found on the Internet did not only help them to solve the problem, they were also able to learn from it*
in terms of how the parts should be assembled and they shared that with everyone.

(Phillip)

These findings are therefore significant to this study as they show that some research participants learnt while working, using codified knowledge. The latter led to the generation of new knowledge, both tacit and explicit knowledge. Both became part of their knowledge base and as such provided the basis for tackling new related assignments. Some of the knowledge generated in the act of doing remained with the research participants, stored for future use as prior related knowledge, mentioned earlier.

Summary of Findings

Several conclusions can be drawn from the findings of this study so far. To begin with, the findings of this study, as will be discussed in details in the next section, reveal how learning for the majority of the research participants occurred mainly through working with experienced colleagues. Most of them indicated that they mainly observed how others did their work. Moreover, they interacted with their colleagues and in some cases received feedback on the work done. Such feedback was then used as a basis for improvements. With respect to externally generated knowledge, most research participants indicated that they worked with those who had received training overseas and learnt from them. Furthermore, they had a system of working that enabled them to share externally derived knowledge through rotation. Learning from other people, which characterizes the manner in which the majority of the research participants in this study learnt, is consistent with the theory of communities of practice theory. Communities of
practice are regarded as critical in the process of knowledge/technology transfer. However, the present study has also deviated from the community of practice theory in that its findings emphasize the agency of the individual social agent with respect to knowledge acquisition. Some research participants were able through their own efforts to learn new skills. This was facilitated by the fact that, from what they said, they were free to experiment and to learn on their own. Some research participants said that they took scrap pieces of metal and practiced welding on their own. This finding makes this study unique because most studies according to the literature have tended to neglect the role of the social actor in absorptive capacity development.

Secondly, the majority of the research participants revealed that they also learnt during work, i.e. while performing their work they were able to generate new insights. Such learning also referred to in this study as ‘learning by doing’ was reported almost by all research participants, including those who had received formal training prior to joining GlobalTech. Learning by doing has also been called learning in the stream of activity by some writers (see Ibert 2006) and is considered significant to this study as many research participants saw it as having contributed enormously to their knowledge base, as will be seen later.

Thirdly, the use of prior related knowledge has also been mentioned as playing a critical role in enabling some research participants to absorb and use externally sourced knowledge. Some research participants have indicated that they relied on such knowledge to recognize, integrate and use externally generated knowledge. Prior related knowledge, defined as implicit knowledge, i.e. the knowledge that is related to the task at hand that the employee brings with him or her to the task. Such knowledge is considered as an important component of absorptive capacity by the
literature as will be discussed later in the next section. However, although prior related knowledge is perceived as critical, as revealed by the findings above, some of the findings also demonstrate that the dispositions of individual social agents also plays a major role in cases where prior related knowledge was lacking in the acquisition of new knowledge. For instance, some of the research participants who lacked prior related knowledge, through their own concerted efforts, were able to acquire skills. On the basis of this finding, therefore, it can be concluded that the individual’s drive to learn is sufficient to ensure that an intense effort is made to acquire and use new knowledge. Therefore motivation is regarded as a necessary ingredient in shaping an individual’s ability to absorb and utilize knowledge which also *per se* points to the role of the individual social agent. As it will be discussed in detail later, when coupled with prior related knowledge, effort leads to the absorption and use of external knowledge.

Fourthly, one of the findings of this study also shows that reflecting on performances contributes to learning. Some research participants mentioned that they sometimes reflect on the work done to draw lessons from their mistakes and sometimes they simply reflect on such work for guidance with respect to how to deal with the present task. The knowledge they draw upon is considered to be the same as that which forms prior related knowledge discussed above. The significance of such reflection to the present study lies in the fact that several research participants mentioned it as a way of learning and, according to some, when its results are used it can lead to more knowledge being generated.

Fifthly, the findings also show that using codified knowledge or explicit knowledge led to more knowledge generation during the application of such knowledge. According to some research participants, more knowledge was generated when they used explicit knowledge in the form of
technical drawings to manufacture new products. Explicit knowledge is regarded in the literature as easy to transfer, unlike tacit knowledge. The significance of relying on explicit knowledge in this study lies in the fact that some research participants at the branch indicated that they used it to solve problems they encountered in connection with the new technology they had received from their international partners.

**Findings Based on Field Notes**

Apart from the empirical findings generated from interviews, there were also other issues raised that formed part of the field notes. These issues are considered pertinent to this study because they relate to themes encountered in the literature review; they are the work environment and remuneration. The work environment at the main branch of GlobalTech appeared to be restrictive in terms of learning opportunities in comparison with the atmosphere at the branch. This is because some research participants at the main branch indicated that they do not interact with outsiders, unless in cases where someone is brought in to provide training. The only instance given when formal interactions with outsiders take place is when another organization is outsourcing an assignment. According to some research participants, there are times when they do things for other organizations in areas where such organization do not possess expertise or equipment. In such instances, they might interact with outsiders at work. One of the interviewee said openly: *Because of the nature of the work we do, we are not encouraged to have connections with people from other organizations. They think that we’ll leak information because some of the things we work on are sensitive (boiler-maker).*
However, it should be stressed that at the beginning of the research, the researcher had made it clear that he was only interested in the manufacture of civil products. And most research participants, except one who spoke at length about the United Nations mission, talked about the manufacture of civilian products. Although not all interviewees spoke openly about why they interact less with people from other organizations, some research participants just said that they do not have such links.

Another example of restriction at the main branch is when new technology is introduced. A case in point, is the new computer-operated cutting machines that was imported from another country; some interviewees indicated that they were not allow to use these machines. One interviewee said: “We have new machines ...but we do not use them. Only those who received training are allowed to use them. They fear that we might break them.”(John)

In contrast, the atmosphere at the branch appeared different: it seemed less restrictive. The branch did not only have relations with international partners, they also appeared more of a community than those research participants at the main branch. It could be that it was because of the fact that they did not have too many divisions as is the case at the main branch: the main branch is bigger and has numerous divisions. Furthermore, based on what the research participants said, work at the main branch seemed to be compartmentalized. For instance, when asked if he helped others to learn, the auto-electrician said that: “Well at the moment I’m the only auto electrician here, if they want to learn, they are welcome. They can come to me so that I can teach them.”(Dantago) Other research participants indicated that their work was segregated according to functions. This is illustrative of the compartmentalization, alluded to earlier. Such divisions could also result in psychological barriers. By a psychological barrier is meant a
barrier in terms of how an employee thinks about him or herself in terms of his or her identity. For instance, the above mentioned auto-electrician might identify himself with his community and as such preclude learning opportunities that relate to fields outside his community. At the GlobalTech branch, on the other hand, which is smaller in terms of the number of employees and the physical infrastructure, most of the different functions were performed under the same roof. As such, the physical infrastructure *per se* creates more of a community-like atmosphere that facilitates interactions. This was not the case at the main branch, where different functions were performed in different venues and work was mostly performed in small groups or even pairs or individually, as was presumably the case in the situation of the auto-electrician mentioned earlier.

Furthermore, there was one other issue that seemed to worry some research participants which eventually surfaced during some of the interviews. Initially, the researcher was not sure if it was part of the phenomena he was interested in. As a result, he initially tried to avoid discussing the topic, but it kept surfacing in different interviews which underlined its importance from the research participants’ perspective. Two or three research participants explicitly raised the issue towards the end of the interviews when they were asked if they had any questions regarding what was discussed during the interviews. Unprompted, some research participants plunged straight into the issue of remuneration. According to them, what they earned was not proportional to the amount of work they did. They felt that they contributed a lot to the organization, but their earnings could barely sustain them. Some of them pointed to the fact that they did not possess qualifications. They saw this as the reason for their meagre salaries. They remarked that those who had qualifications were better off than they were, even though they had been with the
organization for many years. They said that they even helped those who graduate from vocational training institutions to learn how to do the work when they join the firm. Some of the respondents, as far as this issue is concerned, even requested the researcher to raise the matter with management. However, the researcher, who was hesitant with respect to how to deal with this issue, just listened to the complaints and told the research participants that he understood their situation, but it was beyond his powers to influence things in their organization as he was only a student. It can be deduced from what other research participants said that such a situation has led to some of the research participants having their own private small businesses. This is evidenced by what some research participants told the researcher: they said that they manufacture different products at home. The salary issue appeared to have affected the moral of most employees. But it also emerged during the interviews that some employees were scared to raise the issue. They preferred not rock the boat, especially those who did not possess qualifications. With a high number of unemployment in the country, they may understandably fear for their chances of reemployment in the event of being made redundant.

**Summary on Findings Based on Field Notes**

It was noted that the atmosphere at the main branch was restrictive in the sense that some research participants indicated that they avoided having connections with outsiders. According to them, they feared that the management might suspect that they were leaking industrial secrets to competitors. Moreover, in terms of learning how to operate new technology, some research participants said that only people who worked with those machines were allowed to use them. The salary was also mentioned by some research participants as an issue that caused them concern. Although this was not part of the interview questions, the matter surfaced on several
occasions towards the end of some of the interviews. The relevance of all these issues lies in the fact that they could affect learning and use of externally generated knowledge. This was evidenced by the fact that some of the research participants indicated that they wanted to be afforded opportunities to learn more to improve their work. In addition, some research participants sounded demoralized, especially with respect to remuneration.

**Discussion**

The findings of this study resonate with several themes relating to the reviewed literature. For instance, the findings relate to social learning theories, especially Wenger’s (2000) community of practice theory discussed in the literature review. Such theory views learning as a process of enculturation in the practices and cultures of a certain community of practice. A community of practice consists of people who share common interests or concerns and interact to solve problems. A community of practice also develops its own tools, language and other artefacts that are used by its members. People who want to join such a community learn by accessing the knowledge accumulated by the community (Krishnaveni and Sujatha 2012). Moreover, the community of practice theory maintains that novices start on the periphery and gradually move towards the centre, as they master the craft of their community of practice. In other words, they start doing easy jobs while the complex ones are reserved for old-timers (Wenger 2000). In addition, newcomers learn under the guidance of more experienced members of the community. In the present study, this was evidenced by the fact that many research participants indicated that they learnt from others who have been in the job longer, i.e. the experts. The experts sometimes provided guidance by showing the novices how to do the work.
Moreover, as social learning theory, community of practice entails social interaction. The latter is consistent with the findings of Hoitho et al (2011). These researchers conducted case studies in British and German organizations. They found that social interaction was a “prerequisite for subsidiary absorptive capacity.” According to their findings, social interactions facilitated employees’ participation not only in the transformation of external knowledge in the new context but also in the processes pertaining to local application of such knowledge. This is congruent with the findings of the present study as far as the role of social interaction is concerned. Some of the empirical findings of the current study show that after GlobalTech acquired external knowledge such knowledge was shared by those who attended training with their colleagues. Many of the research participants who attended such training said that upon their return from overseas, they shared their newly acquired know-how with their colleagues not only through demonstrations, but mostly through interacting with them as they worked together in teams. Those who did not have the opportunity to be trained by the suppliers also confirmed that they learnt from those who attended training through working in teams and observing others; sometimes they asked questions about things they did not understand; sometimes they did the work and their colleagues provided feedback. In addition, some of the research participants mentioned that as they worked, they encountered new challenges and in the process they generated new insights. Such insights helped them to do their work and some of the insights they applied them while working on similar tasks. Apart from sharing know-how in teams, some research participants in the present study also said that they rotated. Rotation, according to the research participants, enabled them to interact with others and acquire different kinds of know-how related to the imported technology, which they were able to apply in their daily work.
Easterby-Smith et al (2008) and Duchek (2013) also recognize the critical role played by social interaction. Therefore in bringing the role played by individual social agents to the fore as well as social interaction in the context of absorptive capacity development, the present study distinguishes itself from most previous ones and responds to Hotho et al. (2011) who called for more research investigating the social dimensions of absorptive capacity, including the individual antecedents of the construct. As reflected in the literature review, most previous studies on absorptive capacity hid the social dimensions of absorptive capacity: the social dimension of absorptive capacity in the extant literature has been eclipsed by the use of proxies such as investments in training, R&D investments, the existence of R&D departments, etc., to measure absorptive capacity. Critics view the quantitative paradigm as being responsible for the back-grounding of the social dimensions in the absorptive capacity research stream. Such back-grounding is surprising because one would expect the social actor to be at the centre of absorptive capacity development, if absorptive capacity and learning are conceived as related by some researchers or one is the source of the other (Sun and Anderson 2008).
However, although, some of the findings of the present study are consistent with community of practice theory, they also differ from such theory in a number of ways. To illustrate, unlike community of practice theory, the findings of the present study reveal the role played by the agency of the social actors in the process of knowledge absorption in the context of a community of practice. The findings demonstrate that being exposed to the knowledge of a community is not sufficient condition for knowledge acquisition. The novice has to be interested and willing to absorb new or externally derived knowledge. Moreover, he or she has to expend a certain amount of energy to acquire such knowledge. In other words, the process is not a passive one as depicted in the current community of practice (CoP) literature. This also suggests that effort in the process of knowledge acquisition does not only take place when there is external knowledge involved, as is the case in the context of knowledge/technology transfer, as portrayed in the literature (see Cohen and Levinthal 1990; Kim 1998). In the current study, it also occurred in the case of some research participants who exerted themselves to absorb the knowledge of the community in which they found themselves. A good example, is when some research participants applied themselves to acquire the know-how in their work environment. This suggests that both the community and the novice contribute something to the learning process; the community contributes a portion of the community’s accumulated knowledge while the novice makes the effort to acquire some of that knowledge, thus gaining entry to that community.

Nevertheless, it should be pointed out that the effort that some of the participants made seemed to be triggered by something. For example, some of the research participants revealed that there was some kind of motivation that made them to make an effort to learn. One of the research participants explicitly said that he exerted himself to learn because he wanted to secure a job. He
was tired of giving tools to others. Another one also indicated that if he wanted to learn something, he made sure that he committed himself and expended effort to master it. He compared such effort to the kind of effort one would make when studying school subjects in order to pass. The issue of effort-making on the side of the learner, which also emerged as one of the key themes in this study as far as novices were concerned, has also been linked to absorptive capacity development in the extant literature. In addition, to prior related knowledge, the reviewed literature tells us that a firm needs to intensify its efforts to acquire externally generated knowledge, if it is to succeed. For example, in Kim’s (1998) study of learning at Hyundai intensity of effort was identified as critical to learning and developing absorptive capacity. The intensification of effort was achieved through a strategy they invented: they proactively internally triggered crises to compel the company to intensify its learning efforts. Cohen and Levinthal (1990) also identified the intensity of effort as a critical ingredient in absorptive capacity development.

Moreover, although this was not the main purpose of the study, the findings also imply unequal power distribution in communities of practice, which can result in novices having limited opportunities to have access to certain knowledge. Some research participants indicated that they were not allowed to engage in certain work activities which were deemed to be too advanced for them. Such tasks were reserved for the more experienced. The argument advanced in the literature in this connection is that the theory of situated learning or communities of practice seems to be based on the assumption that the processes of learning in such communities are always smooth. In other words, the theory of community of practice ignores the conditions and social realities in such settings. For example, community of practice theory does not say anything about the power relations that are part of the capitalist organization (Contu and Wilmott 2003).
In other words, they give a wrong impression, an impression of a harmonious relationship within such settings. Hence, the call for researchers to include issues relating to power in situated learning theory. Another related issue, mentioned above, has to do with peripheral participation whereby neophytes start on the periphery and gradually move towards the centre of the community of practice after proving themselves that they are worthy of full membership. This is also seen as a possible barrier to learning. Both have implications for the present study because they have the potential to restrict learning or knowledge acquisition.

The other finding of this study relates to the use of prior related knowledge. Some research participants indicated that they sometimes relied on their implicit knowledge or prior related knowledge to help them solve problems or improve their products. Some research participants, for example, said that at times they modified existing products based on knowledge derived from previous experiences such as the manufacturing of products. Furthermore, they said that in the process of applying such knowledge, they also generated new insights when they encountered challenges. For some research participants, the products they manufactured before also represented prior knowledge. Such products, from the research participants’ perspectives, also helped them to modify other products in that the knowledge embedded in them sometimes acted as trigger for new insights and new products through experimentation. However not all prior related knowledge came from products produced before; some of it derived from technical drawings. According to some of the research participants, they stored some of that knowledge in their heads for future assignments. This is congruent with the conceptualizations of absorptive capacity found in the reviewed literature (see Cohen and Levinthal 1990). Prior-related knowledge has been defined variously in the literature and includes language (Cohen and Levinthal 1990). Some researchers refer to it as implicit knowledge or background knowledge
(Dochy and Alexander 1995). According to Dochy and Alexander (1995), prior-related knowledge consists of tacit knowledge and explicit knowledge. The former is the knowledge an organization or an individual has accumulated through work or experience that cannot be expressed in any form (see Gosh 2004; Inkpen and Pien 2006; Nonaka 2007); it is embodied. Explicit knowledge, on the other hand, is knowledge which can be represented in various forms such as technical drawings. As explained in the literature review, explicit knowledge dependents on an individual’s cognitive abilities. For Cohen and Levinthal (1990), absorptive capacity depends upon prior-related knowledge; and it is believed that it facilitates the acquisition of external knowledge. In other words, it is considered by most researchers to be at the heart of absorptive capacity (Kim 1998; Zahra and George 2002; Lichtenthaler and Lichtenthaler 2010).

In fact, the impression given by the extant literature is that without prior related knowledge external knowledge cannot be recognized, assimilated and used in the organization (see Cohen and Levinthal 1990; Zahra and George 2002; Lichtenthaler and Lichtenthaler 2010).

Although prior-related knowledge is regarded as critical to absorptive capacity, as discussed above, the present study reveals contradictory insights in the sense that learning did take place even in situations where there was no such knowledge. In some cases, prior-related knowledge was lacking in the context of learning both within the organization and between organizations, yet learning took place. Sometimes, according to the research participants, they learnt by working with others who had the know-how. This suggests that even in situations where there is no prior related knowledge learning can take place, if the social actor is motivated to find time and expend some energy to learn. But interestingly, those research participants who had some prior related knowledge in both contexts, in inter and intra-organizational situations, also
indicated that what they knew, the technical knowledge they had acquired, helped them to perform their work and gain more knowledge as they worked. They reported that in some situations they relied on prior related knowledge to tackle new assignments and to generate new insights in terms of the work at hand, as they faced challenges. This also resonates with researchers who see knowledge as generated in action or stream of activity. However, it should also be pointed out that some researchers also argue that the narrow focus of absorptive capacity research on prior related knowledge is part of the problem plaguing such research. Hotho et al. (2011), for instance, say that research on absorptive capacity has traditionally been preoccupied with prior related knowledge at the expense of other organizational processes that lead to the acquisition, transformation and application of knowledge. This argument is in line with the point made earlier regarding knowledge acquisition in the absence of prior related knowledge as it implies that there are other factors that are also critical to absorptive capacity development other than prior related knowledge.

The other theme found in the literature to which some of the findings of this study relate deals with the role of cognitive resources in learning. Some research participants said that they noted down things they wanted to remember in future in their heads. For example, some research participants specifically said that when it came to replacing parts on vehicles in the workshops, they sometimes noted the positions of the different parts in relation to each other and the features in their heads so that they could remember where the various components came from, when putting them back. The reliance on cognitive resources suggests the need to embrace both the psychology-based and social conceptualizations of learning. This perspective differs from the current literature in the sense that the literature segregates the various ways of learning according
to different conceptualizations: it emphasizes either cognition or practice, acquisition or participation as Sfard (1996) would say, i.e., one at the expense of the other (see Yaklef 2008). This has led to criticisms in the literature. For instance, critics of practice-based theories argue that social theories of learning are silent on the role cognitive processes play in the learning processes. Proponents of practice-based theories, on the other hand, charge that cognitive based theories, with their roots in psychology, do not provide a complete account of learning as they are narrow. Specifically, they see cognitive based theories of learning as viewing learning as something that happens in the human head, as earlier mentioned. As such, cognitive theories are seen as neglecting the social aspects of learning. In a nutshell, there are accusations and counter accusations that are being hurled forward and backward between these two different approaches. However, since the research participants indicated that they use cognitive processes in learning as well apart from the social processes identified above, it is thought that combining both cognitive and social theories of learning would help explain the ability to recognize and use external knowledge better. Some other researchers also see the need to use both social and cognitive theories of learning side by side. Marshall (2008), for example, advocates the use of both. Support for the use of both theories has also been expressed by Mankin (2009) citing his 2007 study which he says found what he referred to as a “symbiotic relationship” between psychological and social perspectives on learning. Sfard (2006) also, although representing the two theories in a form of metaphors, acquisition and participation, argues in favour of seeing learning as involving both cognitive and social dimensions. Nonaka (2007) also lends support to this view when he claims that the application of codified knowledge gives rise to tacit knowledge, as mentioned elsewhere in this thesis. Remember that codified knowledge is cognitive. Tacit knowledge, on the other hand, is understood as action-oriented and social. These
researchers are not the only ones who see a role for psychology-based theories in studying learning and knowledge, Yakle (2008) has also criticized practice-based theories or social learning theories, arguing that they do not account for cognitive processes which start with the individual. This implies that despite the limitations identified in the literature, cognitive theories have a place in explaining learning. For Mankin (2009), the debate surrounding the question as to whether or not knowledge is an individual or group phenomenon is rhetorical. To an extent such a position is supported empirically by the views of some of the interviewees in this study (see the findings). Some of them have indicated that sometime they relied on cognitive processes to record things in their heads in which case such learning can be seen as cognitive. On the other hand, the findings also reveal the social dimension of learning, hence the argument to embrace both.

The other issue that is worth noting that emanates from the findings is the fact that although the reviewed literature unanimously agree that organizational absorptive capacity is depended upon the absorptive capacity of individual employees, it does not say anything about the knowledge that employees bring with them from their previous work experiences in other organizations. In general, the literature is mute on the role played by individuals in the processes of absorptive capacity development as well as the specific intra-organizational learning processes. The latter ensures that external knowledge is assimilated and applied internally (see Nonak 2007). The silence on this issue could be ascribed to the fact that such studies on the absorptive capacity construct have neither been interested in how individual social actors contribute to absorptive capacity development nor in how absorptive capacity starts, i.e. how individuals’ activities lead its development. This is significant to this study because the study attempts to address such
issues, the role of the social agent and the origin of absorptive capacity, both of which are not given sufficient attention in the extant literature.

The other theme relating to the findings and which was dealt with in the literature review is referred to as the practice-based theory. The literature informs us that there is no single such theory. Instead, there are several versions of them. Although the researcher considers practice-based theories as having some affinity with the community of practice theory discussed above, they are different from it in that they regard learning as generated in the act of doing, i.e. in action (Ibert 2006). Practice-based theories view knowing and knowledge as different phenomena (Cook and Brown 1999) which interact in action. In other words, knowledge is used as a tool in knowing. This is similar to aspects of Nonaka’s (2007) theory discussed earlier. Nonaka’s (2007) theory posits that social actors create new knowledge on the basis of explicit knowledge. This happens as social actors apply such knowledge in practice. They generate new knowledge which later becomes community knowledge.

A clear demonstration of the relationship between the findings and the practice-based theories can be found in how some research participants said they learnt. Apart from learning from experienced colleagues, old-timers, which relates to community of practice theory, as pointed out earlier, some research participants indicated that they also learnt from doing, i.e., while engaging in an activity or practice either in a group or individually. This type of learning, i.e. learning while engaging in practice, was mentioned not only by those research participants who had not attended formal training, who were in the majority, but also by those with formal training. In other words, all research participants regardless of whether or not they attended formal training before joining GlobalTech indicated that they learnt while working, i.e., they
developed new perspectives with respect to how to do their work. According to them, such perspectives enabled them to not only improve the quality of their work, but also to sometimes modify products and solve problems. Some interviewees also indicated that they learnt from the challenges they encountered while working, and sometimes they applied what they learnt while working when they encounter a similar problem.

In addition, in relation to learning by doing, some research participants also mentioned the role played by subjective knowledge, creativity and experimentation as sources of learning with respect to both knowledge that is generated inside the organization and knowledge sourced externally. They revealed that sometimes they relied on their knowledge and creativity to modify products to come up with new ways of doing things. Such subjectivity and creativity are seen in this study as bound up with absorptive capacity. This is because they are regarded as connected. Subjectivity is based on implicit knowledge which gives rise to creativity. The literature tells us that prior knowledge is implicit knowledge which an individual has accumulated over the years or as a result of engaging in different activities. It is what constitutes implicit knowledge in a particular context and guides actions. Experimentation also leads to new knowledge and some of the research participants indicated that they like to try out new things. The findings also show that some research participants were more predisposed to try out things than others. They seemed more motivated than others, even with regard to products they had not produced before. Such differences could probably be explained by the different disposition the different social actors bring to the workplace.
Furthermore, the findings relate to Nonaka’s (2007) theory of knowledge creation which identifies four basic patterns of knowledge creation in organizations. The most relevant one for the purpose of this discussion is the socialization aspect which also relates to the community of practice theory discussed earlier. According to this perspective of knowledge acquisition and creation, tacit knowledge can be ‘transferred’ through working or interacting with someone who uses that know-how and during its application new knowledge can be generated. Nonaka (2007) illustrates this claim with an employee of Matsushita Electric who apprenticed herself to the master baker of the company and acquired know-how that she later externalized and shared with colleagues to solve the problem they faced. As a result of applying such knowledge, new knowledge was generated. In other words, further learning took place that enriched the acquired knowledge and contributed to the knowledge base of the community (see the literature review for a detailed discussion of social learning theories).

What is more, the findings are congruent with Kim’s (1998) study of learning at Hyundai, mentioned earlier, particularly with respect to learning at Hyundai where experts were hired: they acted as sources of tacit knowledge. In the present study the research participants also said that at times they received experts from the suppliers who came to show them how to use the machines. The research participants at the branch specifically mentioned that they had someone who came in to teach them through demonstrations and to work with them.

In addition, some research participants revealed that knowledge represented in the form of drawings is also shared through working together in teams. This is referred to in the literature as explicit knowledge, i.e. knowledge that can be represented in the form of drawings in this case. According to some research participants, sometimes they used drawings to produce new
products, i.e., products that they had not made before. The drawings were produced by the company’s draughts person and provided guidance in terms of how to manufacture products. However, drawings were regarded by some interviewees as not easy to follow which was why even when they had a drawing they still relied on their experienced colleagues to guide them, especially for those employees without formal training who were in the majority. Once they made a product several times, the explicit knowledge and the tacit knowledge they generated in the process became part of their knowledge base. And when shared such knowledge became embedded in the organization, as part of the organizational knowledge base, if deemed valuable. It is this kind of knowledge which becomes the property of the community and which is shared with novices who wish to join the community concerned. This way of learning and knowledge creation is in line with one of Nonaka’s (2007) basic patterns of knowledge creation in organizations which implies that tacit knowledge can facilitate the creation of tacit knowledge when used in practice. According to Nonaka (2007), using explicit knowledge extends the user’s tacit knowledge, as the user internalizes it.

Most research participants at the branch when asked as to how they ensured that external knowledge was integrated and applied, they indicated that they rotated among the different workstations and functions. Such movement of people is mentioned in the reviewed literature as one of the mechanisms through which know-how can be transferred (see Inkpen 2008). Inkpen (2008) claims that when technology transfer involves moving people, especially when the knowledge that is being transferred is tacit success is almost guaranteed. Tacit knowledge according to the reviewed literature is not easy to externalize and transfer. This is because such knowledge is situated and resides in human beings: it can be transferred through social
interactions. However, remember that, as it was pointed out in the literature review, because of quantitative research which has been dominating research into absorptive capacity development, social dimensions have been kept out of research. This has resulted in the reification of absorptive capacity Lane et al (2006). Simply defined reification, as discussed in the literature review, is when products of human labour are discussed or treated as if they originated from somewhere else. It is not surprising then that most of the extant literature does not reflect such interactions, including job rotations.

Most literature on absorptive capacity in the reviewed literature regards R&D as a primary source of absorptive capacity (see Cohen and Levinthal 1990). In the case of Hyundai, Kim (1998), who traced the history of the company’s development of its car manufacturing capabilities, identified R&D as having played a pivotal role in complementing externally generated knowledge. This was in addition to other sources of knowledge such as the use of explicit knowledge and learning by doing. This finding is somewhat surprising given what most literature say about the role of R&D in the development of absorptive capacity or the association of R&D with absorptive capacity, one would have expected R&D to feature prominently. In the context of the findings of this study, the fact that the role of R&D was not mentioned can be interpreted as meaning that absorptive capacity is not entirely dependent upon R&D. This relates to the literature that says that most innovations are not a result of R&D but of imitations (Cohen and Levinthal 1990). According to Kim (1998), Korea moved from imitation to research-based innovation. They started imitating the products of industrially advanced countries. Through such imitations they were able to accumulate tacit knowledge. This suggests that imitation, which belongs to social learning theories, can also contribute to growth in industrial capability
development and absorptive capacity. Some other previous studies have also found that not all innovations stem from R&D investments. Chen (2008) also found that in some sectors of some late industrializing countries some of the knowledge that they used to catch up was accumulated through informal means (see also Lewis 2007). Such means were mostly fostered by the firms themselves. The recognition of other means of developing absorptive capacity should not be interpreted as an attempt to downplay the power of R&D in industrial capability development. Rather, it should be viewed as a way of acknowledging the role of means other than R&D in developing absorptive capacity, which have received little acknowledgement (if at all) in the present literature on absorptive capacity development.

There are several ways in which the above findings address the research questions. First, the findings suggest that learning from experienced colleagues could help developing the ability to use externally generated knowledge. As noted, most of the interviewees arrived at GlobalTech with no technical know-how relating to welding or the manufacture of vehicles. Most of them learnt while working with others. Also, while working, they generated new insights into how to improve their work, as some interviewees mentioned. These insights were shared through working in teams. This implies that they assimilated, transformed and applied such knowledge. This can be deduced from the fact that some interviewees indicated that sometimes they modified existing knowledge. Secondly, the findings also hint at the fact that absorptive capacity is a human-centred phenomenon which is dependent, among other things, on human agency. This is different from the way in which absorptive capacity has been conceptualized in most current literature which sees it as something independent of the social actor (see Lane et al 2006; Hothro et al 2011). The findings of this study show that absorptive capacity is not separate from the social
agent. To illustrate how absorptive capacity is influenced by social agents, take the example of some of the interviewees who made the effort to learn on their own because they were motivated by something to acquire some skills. The fact that some interviewees revealed that one can learn anything if committed shows that absorptive capacity is an elastic human attribute that has no limit with respect to what can be learnt. This is illustrated by one of the interviewees who revealed that through working with others, he learnt how to service light aircrafts before joining GlobalTech. This point also shows that absorptive capacity is generated through learning in addition to R&D. Thirdly, both social learning and cognitive learning go hand in hand and should therefore both be accommodated in organizational settings, although the knowledge derived from social learning is seen as more valuable as it enables employees to perform their work more effectively. Both perspectives contribute to knowledge acquisition and therefore absorptive capacity development. This is because through the use of explicit knowledge, for instance, tacit knowledge can be generated which can be embedded in the organization or explicit knowledge can be shared, as in the case of GlobalTech employees who revealed that sometimes they had to rely on technical drawings to produce new products. This is one feature that makes this study unique in that it moves away from the traditional approach which investigates absorptive capacity from one perspective. Such an approach has been criticized for not providing sufficient clarity. Through the challenges they encounter, employees learn new things, thus developing absorptive capacity.

Fourthly, and related to explicit knowledge, reflection also increases absorptive capacity. Reflection is at the heart of learning (see Senge 2006) and as such it has an important role to play. Some interviewees indicated that sometimes they reflected on their practice and learnt from
such reflections. The literature tells us that learning and absorptive capacity are related (see for example Sun and Anderson 2008). Therefore, it can be said that absorptive capacity is developed whenever new knowledge is acquired. Absorptive capacity at the individual level is translated into organizational absorptive capacity through working together and rotation of employees as well as through working, as new insights are generated as a result of action.

Finally, the findings also suggest that technology transfer does not take place entirely in the manner in which it is conceived in the literature which seems to suggest that it is the movement of objects (see Hotho et al 2011). This has probably been influenced by the term ‘transfer’ inherited from information processing studies. The empirical findings show that technology transfer involves learning processes, i.e. learning from others in the community of practice and through doing and working with others. Moreover, some interviewees indicated that they sometimes modify externally generated knowledge in order for it to suit local context. As it was mentioned, earlier while working people also sometimes generate knowledge which is used to improve performance and in some cases innovate or modify things. Such modification is only possible where there is creativity which arises in situations where there is subjective knowledge. Some interviewees, however, indicated that there were certain things that they were not able to modify such as engines. They considered them to be beyond them in terms of know-how to facilitate modification.
Chapter 5

Conclusion

This chapter starts with the academic debates in the literature that inspired the research question as well as the practical issues surrounding the research. It also covers the contribution that this research hoped to make. Further, the chapter provides a summary of the research methodology employed as well as the sample. This is followed by a summation of what the literature says about the relationship between absorptive capacity, informal learning and knowledge/technology transfer as well as how this study sees the relationship between these three concepts. After this, the chapter presents conclusions relating to the central research question.
Academic and Empirical Background to the Research

The literature informs us that the use of external knowledge is critical to increasing the knowledge base of organizations (Kim 1998; Lewis 2007; Krishnaveni and Sujatha 2012). The literature views the utilization of such knowledge as an alternative route for ‘late-industrializers’ to catch up technologically with the industrial forerunners (Mowery and Oxley 1995). According to Mowery and Oxley (1995), some Asian countries that have made progress industrially relied on the absorption and use of external knowledge to bridge the technological divide. Cohen and Levinthal (1990) also argue that the use of external knowledge is necessary for innovation. Further, they remind us that most innovations do not come from research, but from learning through imitation (see also Kim 1998). However, in order for external knowledge to be incorporated in the existing knowledge of a firm and to be exploited to yield economic value, the recipient organization needs to have the ability to absorb, modify and use external knowledge (Cohen and Levinthal 1995; Mowery and Oxley 1995; Kim 1998). Such ability is referred to as absorptive capacity, as mentioned in the literature review.

According to Cohen and Levinthal (1990), absorptive capacity can be developed in various ways: R&D, training and manufacturing. The latter suggests that absorptive capacity can also be developed while working, through learning processes (see Knoppen et al 2011). This is consistent with the literature on informal learning which regards such learning as an effective mechanism for developing skills and accumulating knowledge (see also Walsh 2007; Nonaka 2007). Nevertheless, the literature on absorptive capacity has been dominated by the use of proxies to measure absorptive capacity. As a result, the other modes of absorptive capacity development, including manufacturing have been neglected (Knoppen et al 2011). In addition,
the individual antecedents of the construct have not been given attention as well as the social interaction. Moreover, most studies that have investigated the construct have been conceptual and have been using the quantitative paradigm (Easterby-Smith et al 2008; Duchek 2011; Knoppen et al 2011). The neglect of other modes of absorptive capacity development and social interaction has led to calls in the literature to investigate the individual antecedents of absorptive capacity and the role of social interaction.

In addition to the academic background discussed above, there were also practical issues that formed part of the background to this study. Such issues are summarized here. The empirical background is conceived in this study as formed by the country’s aspiration to build up its industrial capabilities through the exploitation of knowledge as well as the challenges the country is facing. These challenges are perceived as a result of the current economic climate in which competition is very high and countries are required to constantly generate new knowledge so as to compete on the basis of innovation. The country has set herself an ambitious goal: to boost its industrial capabilities by 2030 (Government of the Republic of Namibia 2004). However, there is a problem that is hindering industrial development in the country at the moment. Most of the country’s business organizations are allegedly unable to utilize knowledge generated elsewhere. Also, those organizations responsible for knowledge generation do not create knowledge that is of strategic significance in relation to the country’s vision. These debates inspired the researcher to gauge the extent to which informal learning and technology transfer impact absorptive capacity. In fact, it was a combination of debates, including informal learning and technology transfer as ways of increasing the knowledge base of individuals and organizations. The central research question was: To what extent do informal learning and
technology transfer impact absorptive capacity? Through this, the research hoped to uncover the role of the individual agent and social interaction in the development of absorptive capacity all of which have not been given sufficient attention in the extant literature. Further, the study hoped, through addressing the central research question, to uncover how informal learning takes place in the context of technology transfer. Now that both the academic and empirical background have been summarized, the methodology will be summarized next, before the findings and conclusions and are presented.

Due to the nature of the phenomenon at the heart of this study, the methodology chosen for this study was qualitative. This was deemed consistent with the nature of the phenomena under investigation which are contextual and subjective. The sample consisted of different categories of employees who mainly manufacture different types of products. Sampling was done purposively, i.e. following grounded theory principles. This means that although the researcher entered the target organization with an idea of how many research participants to interview, there was some flexibility as to who to include in the interviews. Most research participants were recruited as the interview process unfolded. For instance, a decision had to be made after the first ten interviews to conduct interviews at the GobalTech branch, which was originally not part of the plan in order to obtain the data that would address the technology transfer dimension. This change in research site occurred upon the realization that the data generated up to that point did not sufficiently address the technology transfer aspect embedded in the research question. Twenty employees participated (see Chapter 3 on research methodology). Next the focus will turn to a summary of how the three main concepts at the centre of this study relate to each other. The concepts in question are: informal learning, knowledge/ technology transfer and absorptive capacity.
Informal learning has been conceptualized as learning that takes place without the guidance of a teacher and it can take different forms. It has also been referred to as workplace learning by some researchers (Walsh 2007). Some of the reviewed literature connects learning that takes place in the workplace to absorptive capacity. This type of learning, we are told, is an effective way of developing skills required in organizations. For instance, Knoppen et al (2011) assert that learning and absorptive capacity reinforce each other in a ‘cyclical’ manner, i.e. for organizations to be able to recognize externally sourced knowledge, they need to have prior related knowledge. Prior related knowledge has been conceptualized as tacit knowledge in some literature (see for example Dochy and Alexander 1995). Prior related knowledge is the stock of knowledge that the recipient firm possess, derived from past experiences. Such knowledge is seen as critical to learning as it helps with the recognition of useful external knowledge; and as a result of learning, the knowledge base of the organization or individual increases (Konppen et al 2011). This leads to an increase in absorptive capacity. Such a conception of learning and absorptive capacity is also congruent with that of Sun and Anderson (2008) who conceived a relationship between absorptive capacity and organizational learning. These researchers posit two different conceptions of the relationship between learning and absorptive capacity. One such conception, like the one given above, sees a recursive relationship between the two. While the other regards absorptive capacity as a product of learning (Sun and Anderson 2008). Cohen and Levinthal (1990), as mentioned above, have also implicated learning in the development of absorptive capacity when they say that absorptive capacity is developed through manufacturing processes as well as training. This study views absorptive capacity as an outcome of learning, but it also acknowledges the recursive relationship between the two. That is to say, one contributes to the generation of the other and vice versa. However, the missing link, as it were, is human agency. In
other words, human agency has to be brought into the learning-absorptive capacity equation, if the relationship between the two is to be understood better.

**Contribution to the Existing Literature**

There are several gaps identified in the literature review pertaining to absorptive capacity development. Therefore this study intended to contribute to the extant literature in a number of ways. For example, there is a neglect of other modes of absorptive capacity development (see Cohen and Levinthal 1990; Easterby-Smith et al. 2008; Duchek 2013). Most previous studies, as mentioned in the literature review, focused on the use of proxies to measure absorptive capacity, neglecting manufacturing and training as sources of absorptive capacity. Other studies such as Kim (1998), although demonstrate how Hyundai used external knowledge, they do not tell us how exactly the learning happened. Mowery and Oxley (1995) only mentioned that absorptive capacity is a set of skills required to deal with the tacit elements of knowledge (see literature review). Sun and Anderson (2008), posit a relationship between absorptive capacity and organizational learning at the conceptual level. But, they too do not focus on the individual; they focus on organizational level processes of learning. In fact, no study seems to have addressed the learning processes involved in absorptive capacity development empirically. The present study intended to fill this gap by investigating the impact of informal learning, i. e. learning while engaging in daily work activities and knowledge/ technology transfer on absorptive capacity. The other areas identified in the literature as requiring more work relate to the role of the individual in the development of absorptive capacity and social interactions. Specifically, the study intended to investigate how informal learning and knowledge /technology transfer impact absorptive capacity. Moreover, the study was designed to show how absorptive
capacity is developed through learning and how the individual contributes to absorptive capacity as well as the role played by social interaction.

**Conclusions Based on the Findings**

Conclusions relating to the research question will now be presented. After this a discussion of how the findings of the study help answer the research question will ensue. The present study has shown that learning took place at two main stages in the technology transfer process. The first stage was the inter-organizational stage. It took place between the supplier of knowledge and the recipient organization. This first stage is also identified in the literature (Knoppen et al 2011). It can involve joint ventures, training, FDI, transfer of personnel, supply of manuals, etc. In the present study, it involved mainly training in the form of demonstrations, transfer of personnel and the supply of explicit knowledge. Some of the training took place overseas while some of it took place in the recipient organization. The second stage occurred within the recipient organization (see also Holmqvist 2003). This stage is referred to as intra-organizational learning and manifested itself in a variety of ways such as social interactions in the form of rotation of personnel, feedback and asking questions, drawing on subjective knowledge while engaging in action, the use of creativity, the use of explicit knowledge, reflecting on practice, etc. The literature tells us that the second stage has been relatively studied in comparison with inter-organizational stage. This explains the neglect for intra-organizational learning processes as well as the lack of focus on the role of the individual social agents in the creation of absorptive capacity (Easterby-Smith et al. 2008; Duchek 2013). Although this study encompasses both stages, the bulk of its emphasis lied on the learning processes that took place within the organization.
The finding that the absorption and application of externally generated knowledge requires further learning processes after the initial learning between the supplier and the recipient organization is a significant one. This is because it helps us to move our understanding away from the current perspective which views technology transfer as a movement of objects between organizations. This perspective sees knowledge as an object which can be moved from one organization to another. But the finding of the present study suggests that knowledge and technology transfer are outcomes of learning processes that, in the context of this study, took place at two different stages, as mentioned above. The link between learning and absorptive capacity lies in the relationship that some studies have established, although they conceptualize such a relationship differently, as discussed earlier (Sun and Anderson 2008; Knoppen et al 2011). For some researchers absorptive capacity is an outcome of learning, while for others the relationship is recursive, as mentioned above. This study supports those researchers who see a recursive relationship between learning and absorptive capacity, i.e. it regards absorptive capacity as both an antecedent to and outcome of learning. Such a relationship is evident in the fact that some of the research participants revealed that they used knowledge to do their work and simultaneously they said that the generated new knowledge while working as a result of exploiting existing knowledge. Such knowledge led to new insights which they also used in action. In the process of applying such knowledge, their existing knowledge grows. The two seem to be inextricably linked. However, the study has been able to unearth the intra-organizational level processes that lead to the development of absorptive capacity.
Furthermore, the study has demonstrated that the individual social agent plays a critical role in the absorption and application of externally derived knowledge through their agency. This was demonstrated by the role played by some of the social agents in initiating actions that led to learning and by searching for opportunities to learn within the organization and making an effort to learn. Such actions suggest an active involvement of social actors and place the social actor at the centre of absorptive capacity development processes. This is in opposition to what most present studies on absorptive capacity tell us, especially studies in the quantitative camp. Such studies are underpinned by objectivist ontology and epistemology. In other words, they regard the phenomena at the heart of this research as external to the social agent. This means that they do not see absorptive capacity as something that is influenced or generated by human agents, but as something beyond the reach of the social agent in terms of influence. That this is the case is evidenced by the back grounding of social agents, reflected in the extant literature (Easterby-Smith et al. 2008).

Some of the recent literature which has taken an alternative route to investigating the construct informs us that the social dimension of absorptive capacity is hidden in such studies (see Duchek 2013). This has been ascribed to the use of the quantitative paradigm. Critics also claim that quantitative research has led to reification of the construct, thus divorcing it from its original source, the social actor, and presenting it as if it were independent, as mentioned earlier. This has resulted in calls to unearth social processes in order to gain further understanding of the construct and inform practice. Therefore, unlike previous studies, the present research places the social actor at the centre of the actions that lead to absorption and use of external knowledge. The social agents decide what to learn and the efforts to expend. This suggests that the development
of absorptive capacity is entirely dependent on the social actor. This study also shows that further learning takes place within the recipient organization that lead to the integration and application of externally generated knowledge. Further, the literature says that the link between inter-organizational learning and intra-organizational learning is not clear and more research is required in this area to shed light on how the two are connected (Volberda et al. 2010). The literature on absorptive capacity has also stressed prior related knowledge as one of the drivers, so to speak, of absorptive capacity. But this study contradicts such studies: the present study shows that even where there is no such knowledge, learning can take place. This is because the findings show that sometimes being motivated to learn can lead to the acquisition of new knowledge even when prior related knowledge does not exist. This was evident in the case of employees who joined the organization without prior related knowledge and yet managed to learn through their own efforts. They learned from others through observation, imitation and practice. Previous research, as mentioned earlier, neglected social dimensions of absorptive capacity, including motivation which prompted some researchers to call for investigations into effects of such factors. For instance, the issue of motivation has been identified by Volberda et al (2010) as of the factors that should be examined with respect to its influence on absorptive capacity at the level of an individual social agent.
Relatedly, this study has also demonstrated that certain individuals seem to be more predisposed to absorb new knowledge. However, one research participant stated that he agreed to do the work although he was not sure how to go about it to show off his abilities. This resonates with Yun and Allyn (2005), although in a slightly different context, who argued that sometimes people share knowledge in order to impress others (Yun and Allyn 2005 cited in Ombembe 2010). But it should be pointed out that the literature also contests the traditional definition of motivation saying that it is limited. Therefore it proposes a broader definition which covers the application of what has been learnt or transferred from the supplier of external or new knowledge (see Mankin 2009). This means that to say that someone is motivated in the context of informal learning, knowledge/ technology transfer and absorptive capacity, he or she should have moved from the acquisition of externally sourced knowledge to its application. It seems similar in the case of experimentation with new ideas which eventually lead to learning. The data suggests that some individuals are more inclined to experiment and act to implement ideas which lead to learning and knowledge integration and application. In a study on knowledge sharing, Ombembe (2010), found that employees who shared knowledge had underlying motives to do so. It can therefore be deduced from that finding that in the case of knowledge integration and application the same is true, albeit the reason might be different. This is definitely a possible area for future research.
The other conclusion that can be drawn from this study is that social interactions act as a driver for learning; they help embed externally sourced knowledge in the organization as recognized by some previous studies. However, social interactions alone are not sufficient, as mentioned earlier: one has to be motivated and be willing to make an effort. That social interaction is critical to knowledge integration and application is consistent with the conclusions of previous studies. It also resonates with other studies that emphasized the importance of effort on the part of the learner, as reflected in the literature review. Although social interactions constitute learning per se and can be regarded as part of intra-organizational learning, embedded within such interactions is another kind of intra-organizational learning that stems from engaging in action at the individual level. Such learning processes when coupled with social interactions help embed externally generated knowledge within the organization. This means that further learning takes place within the organization which facilitates institutionalization of externally generated knowledge as well as its application and sometimes its modification.

In addition, the study has also concluded that a close relationship is necessary to facilitate knowledge transfer as part of intra-organizational learning. This implies that the same is true in an inter-organizational learning context. Such a relationship was evidenced by the importance some of the interviewees attached to working very closely with the possessor of knowledge. Previous studies neglected these learning processes. The focus has mainly been on inter-organizational learning through recruitment of personnel with know-how, FDI and other channels of transfer. This led to the neglect for the mechanism that ensures that external knowledge is integrated and applied by the recipient organization. Therefore, this is one of the
areas where this research has contributed to our understanding of how the processes within organizations lead to the absorption, integration and use of external knowledge.

However, the study also uncovered certain contextual factors that can impinge upon learning and technology transfer such as whether or not the workplace environment is restrictive. According to the literature, a restrictive work environment restricts learning opportunities. Since absorptive capacity has been linked to learning by some studies of the construct, it can be assumed that a restrictive environment will also affect absorptive capacity development. The other factor that can interfere with absorptive capacity is related to remuneration. The findings show that some research participants were dissatisfied with their pay: they felt that they deserved more with respect to salary. Many seemed demoralized but felt that no one would listen to them because they did not have qualifications. Furthermore, it was concluded that learning and therefore absorptive capacity development could be restricted, if for example, there were limitations imposed in terms of interactions or if the physical layout of the workplace was not conducive to informal learning. Some of the research participants indicated, especially at the main branch that they had no contacts with external sources of knowledge. This was because of the nature of the work they do; they felt that if they were seen communicating with outsiders their bosses might think that they are leaking information to other organizations. However, it was not the entire organization that expressed this concern. It was only expressed by one or two research participants at the main branch. The atmosphere at the other branch was more open and relaxed. It could be that it was because of the distance: the fact that they were far from the organizations’ top management could also have impacted the work climate. From the researcher’s own experience being at the main branch was more restrictive than being at the periphery, as it were.
It also affected creativity, and by extension absorptive capacity. This is was because workers were expected to follow procedures which can have a constraining effect.

The overall contribution of this study therefore lies in placing the social actor at the centre of the processes that lead to absorptive capacity development, the-intra organizational learning processes. Furthermore, the study shows that apart from inter-organizational learning, i.e. learning between organizations that are involved in the knowledge or technology transfer process, further learning occurs that lead to the integration and application of externally generated knowledge. In other words, the findings tell us that learning occurred at two different levels; it happened between the two organizations. This stage of learning is well-established in the extant literature. The other stage of learning took place within the recipient organization. The new dimension that this study adds to existing knowledge is that absorption and use are also underpinned by learning external knowledge which in the process is integrated with existing knowledge in the organization through other learning process. The latter is also informed by knowledge generated through doing. These learning processes have not been researched in this manner and, as said, most studies have been quantitative.

The literature tells us that the role of the social agent has not been sufficiently research in the context of absorptive capacity development. The focus, as pointed out earlier, has been on R&D. Therefore, this shift of focus on the individual brings new understanding of the phenomenon. Moreover, it establishes learning as the main driver of absorptive capacity. The study also confirms previous studies that found that the workplace is a platform for learning. What is more, it is concluded that apart from R&D, and this is without downplaying its significance, absorptive capacity can also be developed in other areas such as manufacturing through situated learning.
processes. Also, the contextual nature of absorptive capacity has been brought to the fore. It is also concluded that prior related knowledge is not always necessary, especially in situations where there is motivation to acquire know-how.

**Implications for managers**

The main findings of this study have shown that the social actor is at the centre of absorptive capacity development. The study has also revealed that learning is a tool through which absorptive capacity can be enhanced. Previous studies neglected the role and primacy of the social agent in absorptive capacity research. This was because the construct was reified as shown in literature review. Reification led to the severance of a human product from his or her labour, so to speak. Consequently, the social agent was mostly kept out of the picture. The present study, on the other hand, portrays the social agent as the main driver of absorptive capacity development.

The study has several implications for managers with respect to fostering absorptive capacity. First managers themselves need to recognize that social agents are at the centre of absorptive capacity development. In other words, they drive the processes involved. Such processes entail mostly learning and depend highly on the social agent. As such, they make the social agent indispensable in terms of absorptive capacity development. Secondly managers need to realize that external knowledge is critical to increasing the existing knowledge base of an individual and the organization. Therefore, they should constantly strive to expose their employees to relevant external knowledge. Thirdly, managers need to realize that workplaces or organizations are platforms where valuable knowledge is created and shared. This is particularly relevant in the Namibian context where working and learning are seen as separate phenomena. Managers need
to create conducive environments within organizations to enable employees to interact with other employees in other organizations to exchange knowledge and enable them to absorb such knowledge and modify it. This is of course easily said than done because other organizations might see them as potential competitors in which case they might be reluctant to engage in such exchanges. This is where social capital would be required to facilitate the flow of knowledge. But for this type of relationship to bear fruits it should be initiated at the individual level, i.e. employees should be encouraged to forge such relationships with their counterparts in other organizations and maintain such relationships. Employees can even join communities of practice through which they can learn and increase their knowledge base. But these communities should be informal, i.e. they should not be initiated by management but by employees themselves. In their study, Krishnaveni and Sujatha (2012) found that such communities are effective in transferring knowledge from other organizations. On their side, managers can provide incentives which can take various forms such as merit certificates, promotions and other suitable forms of recognition.

Furthermore, managers can also facilitate learning within organizations by creating opportunities for learning. This can be done, for instance, through the creation of learning environments where opportunities for learning are made available for all employees to reflect on their work and learn from their experiences. Sometimes employees are too busy to find such time due to pressures from workloads. Such pressures deny employees opportunities to tap their inner resources, including their tacit knowledge, which the literature tells us is the basis for knowledge creation (Nonaka 2007). This is where managers can step in to ease the pressure. But first they should recognize the benefits that the organization will be able to reap from learning from their own
experiences and integrating such experiences with externally derived knowledge. In addition, working in teams as suggested by this study as well as the previous ones (for example, Walsh 2007) is another way in which managers can foster the development of absorptive capacity through learning. When working in teams people learn from each other through observation and imitation. This is also in line with communities of practice mentioned above. The system of rotating employees is also a good way of encouraging knowledge transfer that is at the disposal of managers. Rotation is not only useful in terms of developing the ability to absorb and integrate external knowledge, it, per se, acts as a motivator. This is because employees get exposed to different types of skills some of which they will require in the future. Therefore, they might see such exposure as something that will benefit them in the long run.

Finally, the findings of this study also have implications for countries intending to catch-up industrially. They need to establish relations with industrially advanced countries in order to learn from them.
Research Limitations

This study is not without limitations. Several limitations have been identified. The first limitation is that this study investigated the impact of learning and technology transfer on absorptive capacity in the context of a relationship established by two governments. This means that the relationship was not initially created by the parties involved, albeit they did their part to cement their relationship as time went by. Therefore the findings should be considered in that context. Outside such a context the findings may be different.

The second limitation has to do with the fact that the present study was conducted as a single qualitative case study. As such, it did not use measurements to establish relationships between the different variables. This was because it was not interested in making generalizations to other organizations. Its interest was in gaining an in-depth understanding of the phenomena under study. Hence, it chose a single case design. However, there might be aspects of the findings that can be generalized to other organizations.

Moreover, as the researcher was racing against time, it was not possible to allow the research participants to read through the data to determine whether what is reflected in the data represent their input to this study and not misrepresentations of their perspectives. Confirmation is considered useful as it affords research participants an opportunity after the data have been transcribed and interpreted to go through the findings and provide the researcher feedback as to whether their views are presented accurately.
The third limitation of the study was that it did not include scientific knowledge, i.e. R & D derived knowledge which has been the focus of most studies that have investigated absorptive capacity so far. Rather, this study focused on less researched aspects of absorptive capacity development, the intra-organizational processes as well as the well-researched inter-organizational learning processes. Specifically, the present study concentrated only on informal learning and knowledge/technology transfer, how and the extent to which they impact absorptive capacity. As such, the study was mainly interested in uncovering individual antecedents of absorptive capacity development and the role of social interaction in that context.
Future Research

This study focused on the individual antecedents of absorptive capacity development, especially the role of the social actor which has been neglected in most previous studies. The study also covered social interaction in the context of both informal learning and knowledge/technology transfer. But, it would be interesting to see similar studies in different contexts. Particularly, it would be interesting to see the type of results such studies will produce vis-à-vis the findings of the present study.

There are other areas relating to this research that need further exploration. For instance, more research is needed to unearth other intra-organizational processes that affect absorptive capacity development, especially those that were outside the scope of the present study, i.e. those that were not the main focus of the study. The current study has only scratched the surface of a very complex multi-dimensional construct. For instance, as suggested by previous studies, the impact of power relations and organizational structure on absorptive capacity need further research. The same applies to other factors embedded in the workplace such as motivation, which was peripheral to the present study. How do such factors impinge upon absorptive capacity development? Further, the link between individual learning and organizational learning remains unclear. And so is the connection between individual and organizational absorptive capacity. We saw in the literature review that reification detaches the social phenomenon from its originator, thus complicating efforts to investigate it and representing it in a manner that makes it look like it is independent from the social actor. Despite evidence that reification has taken place some researchers continue to talk about organizational absorptive capacity. Therefore an empirical study that directly addresses this question would be a welcomed effort.
The other factors that need investigating are issues pertaining to what predisposes certain individuals to want to learn. What makes some people more willing to experiment in the context of absorptive capacity development than others? The findings of this study have not been able to shed sufficient light on this, albeit one research participant indicated that he wanted to show off what he was capable of and the other wanted to secure his job. This was not sufficient to provide ground for a robust conclusion. Therefore, it would help us to understand what exactly underpins such behaviour, if more research is conducted specifically targeting such factors.
Appendices

Appendix 1

Interview Protocol

Opening Comments
Thanks
Explain project and purpose of interview
Provide overview of areas to be covered
Recorder; anonymity and confidentiality
Questions or comments
Background Information
A couple of questions about yourself and your work
How old are you?
What is your job title?
Are you full / part-time employed?
How long have you been working for this organisation?
Biographical Information
Questions about your background
Are you originally from here?
What type of school did you go to?
Did you enjoy it?
What did you particularly like/ dislike? (PROBE: preferred subjects, teachers, form of pedagogy)
The nature of work (informal) learning
Now, tell me about what you do, the specific tasks and activities you do daily, the tools you use to do your work, who you work with and how and so on.
So, could you describe the work you do often on a daily basis? How does the average day unfold? [PROBE: range of tasks, interactions with other people, artefacts]

How did you learn to do that/use that?

Formal training/ picked it up? How? Asked someone? (observation, learnt by doing, mentoring)

PROBE instances of informal learning (how, did they occur? From whom, what or what processes did the learning come? Were they useful?)

When you first started your job, can you remember if there were any things that you found hard or difficult to get used to? How did you get better at those things?

Is there anything you still find difficult about your work?

Would you say that you do different types of work, or does your work concentrate on only a few things?

If I asked you what skills you think are most important to your job, what would you say? And how would you say you acquired them?

Who would you say you generally interact with at work most daily?

Why do you interact with them?

And what do those interactions normally entail?

And who do you ask (if anyone) if you’re not sure about how to do something, or if you need more information about something?

Do you make use of any outside sources of learning for your work- whether it is the internet, friends, people you know, other organisations, colleges or whatever?

Would you say you help others learn in the workplace? How? Do you share bits of knowledge, talk about work and how to do things better?

In general, would you say your organization supports and encourages learning?

PROBE: role of managers here, cultural attitudes, structural incentives?
Technology transfer and absorptive capacity

Could we now turn to the transfer of technology / knowledge? I’d like to know whether your organization receives technology/ knowledge from other organizations, how you go about recognizing the value of such technology or knowledge, how you make it part of your organization and how you use it. By ‘technology’ I mean physical equipment or processes involved in manufacturing.

Would you say your organization gets technology from other organizations?

PROBE: sources, likes and dislikes of technology/ knowledge transfer, etc.

Could you describe specific technologies/ knowledge your organization has acquired? And how did you go about integrating it into your organization?

PROBE: learning (e.g. working alongside expatriates, interactions with suppliers, observations, training, reading publications, machines, tools, etc.).

PROBE: if existing knowledge facilitates recognition and valuing of external technology/knowledge, acquisition, transformation and use.

To what extent, would you say, did informal learning and technology/knowledge transfer help you to learn to use external technology/knowledge, integrate it and use it in your organization?

What would you say is the connection between informal learning, technology / knowledge transfer, technology/ knowledge integration (making it part of your organization) and application?
In general, would you say your organization encourages workers to acquire and use technology/knowledge from outside your organization? How? PROBE: how commitment to technology/knowledge acquisition and application is ensured.

END

Is there anything else we have not discussed that you would like to talk about?

Do you have any questions?

Thank you very much indeed for agreeing to do the interview.
Appendix 2

Dear

I am a Namibian national who is doing a Doctorate in Social Sciences at the Centre for Labour Market Studies of the University of Leicester in England. As a doctoral student, I am required to carry out research for a thesis. My research will address the question: To what extent do informal learning and technology transfer impact on absorptive capacity?

Informal learning, i.e. learning while engaging in everyday work activities and technology transfer are viewed as critical in developing industrial capabilities. However, the lack of absorptive capacity, that is, the inability of firms to recognise externally generated knowledge and use it to create value with respect to products and services is regarded as a major stumbling block; lack of absorptive capacity has also been identified as a major problem in many Namibian organizations by the government, which it intends to address as the country moves towards industrialization.

Since you are involved in manufacturing and have several collaborations with external entities, I believe that your organisation is the most suitable for a study of this nature. Therefore I hope that you will afford me an opportunity to research the extent to which informal learning practices and technology transfer help organisations to develop absorptive capacity. It is expected that the outcomes of this research will enable the organisation to exploit the knowledge that is generated through work and to tap global knowledge networks more effectively. In addition, the organisation will benefit from a copy of the relevant research findings. I hope to conduct several interviews, each lasting for about 30 minutes, with workers in the manufacturing department (s).

Finally, I wish to assure you that the findings generated by this research and any other information will be treated with the highest level of confidentiality: it will only be used for academic purposes and will not be exposed to competitors or any other person or organisation. No names will appear in the thesis. Also, those who will be interviewed will have a chance later to go through the transcribed data for confirmation purposes. Would you please allow me to do my research at your highly esteemed company?

Yours sincerely

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Appendix 3

LETTER OF INFORMED CONSENT

Study Title: To what extent do informal learning and technology transfer impact absorptive capacity?

You are kindly invited to participate in a research which is going to take place at GlobalTech from August to September 2013. Before agreeing to participate in this research, I encourage you to read the following explanations of the study. This statement describes the purpose and procedures of the study. Your right to withdraw at any stage of the research is also described. The research is part of my doctoral studies and has been approved by the Ethics Committee of the University of Leicester; it is expected to result in a thesis that will be used for examination purposes only.

Explanation of Procedures

The research will investigate the extent to which informal learning and technology transfer influence the recognition, transformation and use of externally generated knowledge. Some researchers have identified both informal learning and technology transfer as ways of developing capabilities. But what is not clear is the extent to which both affect an organization’s absorptive capacity.

As a participant in this study, you will be interviewed individually by me for about thirty minutes regarding informal learning at work, technology transfer and the use of knowledge. The interviews will be recorded and transcribed for the purpose of data analysis.

Risks and Discomforts

There are no risks or discomforts anticipated as a result of your participation in this research. Potential risks or discomforts include emotional sad feelings that will affect you when asked questions during the interview.
Benefits

The anticipated benefits of your participation is your contribution to our understanding of the extent to which informal learning and technology transfer influence the recognition, absorption and use of externally generated knowledge. The absorption of such knowledge has been identified in the country’s development plans as a major challenge facing many Namibian organizations. In addition, the company will receive a copy of the relevant results of the study.

Confidentiality

The data that will be generated during this study will be handled with the highest level of confidentiality. This means that no other person except the researcher will have access to it: the data will be stored on a password-protected computer. Also, your name will not appear anywhere in the final report; where necessary, a pseudonym will be used. The same applies to the name of your organization. Moreover, after the thesis has been examined, the recorded data will be erased from the recorder; and the notes taken during the interview will be destroyed upon completion of the project.

Withdrawal without Prejudice

Participation in this research is voluntary; should you decide to withdraw at any stage of the research, you will not be penalized. Moreover, you have the right to refuse to answer any question you might be asked during the interview.
Further Questions and follow-Up

After the interview, you are welcome to ask the researcher any question that you thought of during the interview or seek clarification.

I______________________________, have read the above information. I freely agree to participate in this research. I fully understand that my participation is voluntary and that I have the right to refuse to answer any question during the interview. I also understand that I can withdraw from the research at any stage, should the need arise. Further, I understand that my answers will be recorded anonymously: my name and that of the company will not appear in the thesis.

Participant Signature  Date

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