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In Search of Innovation

~ An interpretative approach ~

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~ Abstract ~

Theorists and practitioners have become institutionally committed to the development of efficient, and innovative processes. Nevertheless, fostering such activities demands a thorough understanding of knowledge creating procedures. Although different scholars have stressed the complexity of knowledge, this aspect seem to be forgotten in the continuously stream of research in the business and management area. One essential explanation can be deduced to the dominating rationalistic approach, which is based on a dualistic ontology, and an objectivistic epistemology.

In this thesis a phenomenological approach is utilised in order to investigate how individuals interpret knowledge creating projects in search of innovation. The main objective is to examine and describe essential aspects of innovative procedures, and out of this enhance our understanding regarding organising in managerial settings. This is accomplished by utilising a single case study from a company in the pharmaceutical industry. In order to contribute to the general understanding of knowledge creating procedures in organisations, we expose what we consider to constitute central characteristics of knowledge creating processes leading to innovation.

Keywords: Innovation, managing knowledge, social constructionism, phenomenology, learning, pharmaceutical industry

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The Authors
Gothenburg, December 2002

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1. Introduction

The purpose of the following chapter is to provide background information about the investigated area. Firstly, we discuss why knowledge has become recognised as one of the most important factors for competitive success. In extension of this, we look into some managerial issues concerning how companies in the post-industrial society can attain both a high level of innovation and efficiency simultaneously. This leads us on to a description of the main objective of the thesis, which is to contribute to the understanding of how knowledge is created in order to improve processes leading to efficiency and innovation. Subsequently, we clarify our delimitations, and outline the disposition of this thesis.

1.1 Background

Since the beginning of the 1990s the concept of knowledge creation and sharing has gained increasing interest (Teece, 1998; Cummings, et al., 1999; King, et al., 2001). Researchers and practitioners within the field of organisational theory are profoundly being convinced that organisational and individual knowledge is essential in order to achieve competitive success (Ibid). Some theorists even go a step further by proclaiming that knowledge creation is the fundamental source of competitive advantage (von Krogh et al., 2000). Thus, arguing that knowledge has become *"the resource, rather than a resource"* (Drucker, 1993: 40). As a point of departure, we find it interesting to examine what has caused the new emphasis on this age-old subject.

A vast number of authors within the area motivate their interest in knowledge by referring to two phenomena, namely globalisation and information technology (e.g. Teece, 1998). The linkage between these notions and knowledge is a key theme in the literature. To be more precise, many writers claim that the dimensions of competition have changed as a result of increased globalisation and more advanced technology. In this regard, organisations of today have to focus on knowledge in order to stay competitive. Hence, the plea for research in the area is based on the supposition that modern corporations

"differentiate themselves on the basis of what they know" (Davenport & Prusak, 1998: 13).

In search of competitive advantages, numerous organisations have become institutionally committed to the development of efficient, and innovative processes. However, supporting innovative activities is a fragile process, which demands a thorough understanding of the process of knowledge creation. Despite the continuous stream of research in the business and management area, the contributions often ignore or contradict findings in the area of human cognition, and organisational behaviour developed in psychology and sociology (Sanches, 2001). Thus, significant management problems can be linked to the fact that we sometimes base our theories on unrealistic assumptions of human behaviour (Sandberg & Targama, 1998).

Although different scholars have emphasised the complicated nature of knowledge (e.g. Polany, 1962; Berger & Luckmann, 1966; Nonaka & Takeuchi, 1995), this aspect seems to be forgotten in the mainstream literature within the area. Instead, it has become a truism that innovation is supported through the implementation of diverse information systems (von Krogh, et al., 2000). There has been a clear organisational trend to fail to make the distinction between the concept of information, and the concept of knowledge (Braf, 2000). Thus, the loss of emphasis on the human being is remarkable in the process of enabling knowledge creation. *A central issue within this perspective is the question of how organisations should encourage and support innovative processes.*

This observation motivates a need for research concerning individuals' ability to create and share knowledge. In the society of today, organisations are required to facilitate the knowledge creating process in order to respond to the changing environment. What is distinctive about the situation is that knowledge *"acts upon itself in an accelerating spiral of innovation and change"* (Swan, et al., 1999: 264). Stated differently, the crucial difference about the current period is that *"the human mind is a direct productive force, not just a decisive element of a productions system"* (Castells, 1996: 32). As a consequence, individuals in organisations have become more important and independent in

their work. Thus, the increased dependency of the employees demands new strategies for managing and encouraging them. Given this new set of conditions, a fundamental managerial question is how this could be accomplished.

1.2 Establishing a Research Focus

The essential thrust in the classical management theory is captured in the idea that management is a process of planning, command, coordination, and control (Morgan, 1996). Theorists were typically interested in problems of practical management, and pursued to create general models of successful organisations for others to follow. With the utilisation of these principles, the traditional hierarchic organisation came into existence (Ibid). In this organisational structure the decision-making process was localised at the top of the hierarchy (Hedlund, 1994). Selected information was passed up to the top-executive, who then created the concepts that became the operational conditions for the middle managers. Hence, the structure was highly formalised and largely dependent on the standardisation of work processes (Nonaka & Takeuchi, 1995).

The recognition that changes in the context of working life create challenges for corporations and their management, has given rise to new forms of organisations. In contrast to the old bureaucratic configuration, the new organisational form is composed of "distributed" responsibility and trust in a system of units (Stacey, 2001; Styhre, 2002). The principles of the modern organisation provided a framework for creative planning, and increased cooperative action. It could be compared with an internal market composed of employees representing all the relevant managerial functions (Ibid). The organisation itself is preserved through the systematic creation of new boundaries, thus the general characteristic of the new organisational form is a flexible and adaptive structure.

Embedded in the modern form of organisations is the idea that unnecessary lead-time should be eliminated (Styhre, 2002). In order to accomplish this, distributed organisations often use project execution (Lundin & Söderholm, 1995; Packendorff, 1995; Kreiner, 1995). This means that the knowledge

production of the organisation is performed in a number of time-limited projects. The formation of the project team is done through allocation of employees with certain expertise within the area of interest (Styhre, 2002). After the allocation process, all project members are expected to work as a cohesive unit. Interdependence creates the foundation for individual and departmental cohesiveness (Argyris, 1999).

At first glance, these characteristics may give a very promising picture of organisations in the post-industrial society. However, the change from a vertical to a horizontal perspective on organisations (Ostroff & Smith, 1992), and the increasing utilisation of project teams is not without its challenges. The exploration of recent publications reveals that many negative consequences of the older structures are re-appearing (Argyris, 1999). Interestingly, individuals still seem to protect their own function, mistrust each other's behaviour, and give emphasis to short-term rather than long-term objectives (Ibid). Consequently, it is reasonable to question whether these new organisational forms are actually efficient and support innovation. This provides us with a first indication that additional research is necessary.

A number of management scholars have investigated this classical organisational issue, initially labelled by Thomson (1967) as the "paradox of administration". The significant management problem within this perspective is that organisations cannot achieve a high level of innovation, and retain the same level of efficiency. Thus, it is a trade-off situation in which one alternative must be preferred over the other. In a similar manner, Abernathy (1978) echoes Thomson's contention, proclaiming that organisations are facing a "productivity dilemma". Despite using the term dilemma, which in fact represents an either-or situation (Oxford Dictionary, 1999), Abernathy does not suggest a mutual exclusion. Rather, he takes it one step further by arguing that it is possible to choose between different levels of innovation and efficiency. The same message has appeared in the literature by several other authors, using slightly different terms (Magnusson, 2000).

Nevertheless, some modern organisations have conquered this challenge in practice, whereby there seems to be debatable evidence for this trade-off

postulate (Adler, 1999). In investigating this subject, the core insight emerging from the management research is that the ability to achieve efficiency, and a high level of innovation is conclusively related to the implementation of the new administrative principles (Argyris, 1999). The idea of developing capacities for complex problem solving, and cooperative innovation has established itself as a key priority in the modern organisational structure. Thus, the framework provided is *not* inherently invalid. However, barriers to innovation appear to be in the human behaviour developed within the prior hierarchical organisation.

This issue was brought to the forefront of management attention through the pioneer work conducted by Chris Argyris and Donald Schön (1978). The authors argue that conditions are created within organisations, which significantly affect how individuals perceive the problem, how they create a solution, and finally how they act in order to solve it. However, independent of the organisational requirements, individuals might bring bias and constraints to the learning situation, which in turn influence the way individuals and groups make decisions, and solve problems. The principals of single, and double loop learning provide a framework for how this is realised.

Argyris and Schön (1978) suggest that the learning is single loop when the process of learning rests on an ability to detect, and solve problems in relation to a given set of operation norms. These norms are the ideal conditions that individuals strive to "satisfy" when they are acting. Thus, if an error is discovered and corrected without questioning or altering the underlying belief, the learning is single loop. Alternatively, when mismatches are corrected by questioning whether the operating norms are appropriate, the learning is double loop.

As already noted, the basic thrust in the hierarchical thinking is captured in the idea that organisations should focus on control through rational planning and clearly defined goals (Morgan, 1996). Thus, this "top-down" approach to management encourages what Argyris and Schön (1978) define as single-loop learning. However, it is also accurate to argue that the previously mentioned approach undoubtedly discourages the double-loop learning, which is essential

for organisations to evolve. This gives rise to an interesting paradox within the field of management; *how is it possible to manage an organisation in a coherent way without setting clear goals and objectives?*

In "The knowledge creating company", Nonaka & Takeuchi (1995) present a study of innovation in successful Japanese companies. The authors demonstrate that organisations require genuine learning, and the ability to develop breakthrough products and services rather than normative acting. Instead of having clearly stated objectives, they should emerge from a process of understanding the values through which an organisation should be operating. Furthermore they claim, *"that the individual interacts with the organisation through knowledge"* (Nonaka & Takeuchi, 1995: ix). As a consequence, knowledge is the key to understanding the organisational efficiency-innovation problem. However, being a fairly new-fangled theoretical approach within organisational studies, there are limitations with the knowledge-based theories of today.

Managerial aspects of learning and enabling knowledge creation in social contexts have rarely been addressed in previous research. Rather, most suggestions contradict the findings of cognitive psychology and sociology (Stein & Ridderstråle in Sanches, 2001). Despite efforts made, the contribution has been constrained by a *"rather narrow focus on IT based tools and systems, premised on a cognitive information-processing view"* (Swan, et al., 1999: 263). As Von Krogh et al. (2000: vii) points out, *"in many organisations, a legitimate interest in knowledge creation has been reduced to an overemphasis on information technology or measurement tools"*. Thus, one of the problems in the literature is that authors often neglect to address the human aspect in the innovation-efficiency equation.

A fundamental explanation to this phenomenon can be deduced to the dominant rationalistic approach within the field of management. This view is based on the idea that the reality is external to the individual, and that there is an existing objective, knowable reality beyond the human mind[1] (Burell & Morgan, 1979).

[1] These are ontological and epistemological assumptions, something that will be further dealt with in chapter two and three.

However, Sandberg & Targama (1998) argue that there has been a shift in scientific approach towards a more interpretative perspective on human behaviour. Essential to this change was the recognition that human action is not directly influenced by external factors, such as rules and regulations. Instead, our course of action is based on how we understand them (Ibid). Nevertheless, as practitioners are still acting within a rationalistic framework, a real shift has not been brought into life.

1.3 Description of Problem Area

As indicated in the foregoing discussion, modern organisations are struggling with the compound task of achieving efficiency, and a high level of innovation. Interestingly, the main problem seems to originate from the bureaucratic pyramidal structure. A substantial challenge can be connected to the paradox of management within the new administrative forms. The flexible and adaptive structure that characterises the organisation of today leads to a higher rate of independency and autonomy. In tact with the increase of self-governing processes, the direct control within the organisation is reduced. Consequently, a modification of the management function is necessary.

Moreover, researchers and practitioners have regained interest in the processes leading to efficiency and innovation, particularly those related to managing knowledge. In turn, knowledge creation is being perceived as the central issue in solving this equation. However, the dominating rationalistic approach to recognising key management issues does not identify and describe the knowledge creation process in a direct manner. Accordingly, the complex nature of human behaviour is often being neglected. As a result, many contributions contradict findings of cognitive psychology and sociology. *Hence, from a managerial perspective, there is an evident need for understanding how knowledge is created in order to improve processes leading to efficiency and innovation.*

1.4 Purpose of the Study

The main purpose of this study can be summarised as an interpretative approach to how knowledge is created in order to improve processes leading to efficiency and innovation. More specifically, we wish to contribute to the apprehension of knowledge creation by exploring individual perceptions of this phenomenon. In this sense, the objective is to examine and describe essential aspects of innovative procedures, and out of this enhance our understanding regarding organising in managerial settings.

1.5 Research Question

Given the above ambitions, this thesis is of descriptive nature. The intention is to examine and describe the lived experience of a group of individuals, in an effort to improve our understanding of the underlying structure and essence of knowledge creating processes. Deriving from this, the primary purpose of enquiry was formulated as following:

How do individuals interpret knowledge creating projects in search of innovation?

1.6 Delimitations

When research is conducted it is not possible to consider all aspects of interest. Thus, it is necessary to decide which angle of incidence to utilise. In our case, the problem area has been approached from a social constructionist perspective, whereby we have focused on cognitive structures regarding the phenomenon of knowledge creating procedures. Hence, our concern has been to utilise constructions in order to reach a deeper understanding of knowledge creation and innovation. This implies that the relevance of our contribution is restricted to the respondents of the conducted interviews at the selected company.

To carry out the research objectives, we have chosen to apply a single case study. This approach has been criticised for providing little basis for scientific generalisation (Yin, 1994). Nevertheless, our purpose is not to verify hypotheses or testing theories in order to provide objective truths. Instead, we

aim to contribute to the apprehension of a specific phenomenon. From this perspective, the single case study method is used to create in-depth understanding and explanations of underlying structure and essence of knowledge creating processes. Thus, the most evident delimitation is the number of conducted interviews, rather than using the case study as research strategy.

It would have been fortunate to carry out more interviews in order to increase our understanding of the investigated phenomenon. However, conducting in-depth interviews is a time consuming process, and the predetermined period for this thesis did not allow for further data collection. Moreover, as the studied company is operating with global project teams, it could have been interesting to explore how values and norms are created in geographically separated communities of practise. Due to the restricted time frame, we were not able to proceed with this investigation. Nevertheless, it could be an idea for further research.

1.7 Disposition of the Study

Despite the fact that the introductory chapter foreshadows the scenario of this thesis, we find it appropriate to provide a concise description of the chapters to come. Hence, the purpose of this section is to present an overview and thereby simplify the reading process.

Chapter two intends to clarify the two dominating intellectual traditions in Western philosophy. Firstly, a short prologue describes the nature of the chapter, whereby the most important aspects are highlighted. Then, we describe some philosophical considerations from the ancient Greek period until now. Subsequent to this enquiry into the Western philosophy, we provide a brief description of the idea of social constructionism.

Chapter three presents the research approach, and strategy chosen for this thesis. Initially, the chapter configuration is explained, therein lies our reasoning concerning relevance, rigour, and validity. We continue with a short description of our research process. Additionally we shed light on our

philosophical assumptions, and finally, our reasoning concerning the credibility, and relevance of this research is contemplated.

Chapter four combines various parts of previous research into a comprehensive framework. We start with a description of the main purpose of the chapter and a short clarification of the concept of innovation. This leads us on to a presentation concerning different aspects of knowledge. Finally, learning and the phenomenon of administrative shapes are taken into consideration.

Chapter five gives the reader an overview of the empirical data that was collected at AstraZeneca. Firstly, we provide a description of the company and the research setting. Then, a summary of the primary research is described in form of four interrelated entities, namely (1) Leadership, (2) Continuous Learning, (3) The notion of Care, and (4) The Ability to Act. The previous builds the foundation for the subsequent conclusion.

Chapter six discusses and summarises the central contributions of this thesis. Initially, the key aspects concerning the problem area and the purpose of the study are highlighted. Following this, we elaborate on the outcome from our empirical research. Finally, we bring the implications of the findings to a higher level in order enhance our understanding regarding organising in managerial settings.

2. Setting the Stage

This chapter is of explanatory value, and intends to present and clarify our reasoning concerning the investigated area, as well as the methodological choice. We commence with a short prelude, where the nature of this chapter is explained and the most important aspects are highlighted. Then, we describe some philosophical considerations from the archaic Greek period until now. Subsequent to this enquiry into the Western philosophy, we provide a brief description of the idea of social constructionism.

2.1 Prelude

As postulated in the introductory chapter, the concept of knowledge is not definite. On one hand, knowledge can be regarded as objective truths, and indisputable facts. On the other, it can be defined as socially constructed, where human beings consciously, or subconsciously give meaning to their sensory experience. The attitude to this issue is vital since the definition of knowledge also has consequences for what we mean by supporting innovative processes. A major concern in this thesis is that modern literature is often based on the premise that knowledge creation can be encouraged through the application of standardised and universal techniques. In our opinion, this is a simplified view, which has limited the contributions concerning the understanding of knowledge creation.

To understand the diffusion concerning the concept of knowledge, we argue that it is necessary to put it in a wider context. The above-mentioned perspectives of knowledge are anchored in two epistemological traditions in the Western philosophy. In order to clarify fundamental ideas that have influenced our choice of research approach, as well as problem resolution, it is of vital importance to illuminate these two contrasting intellectual traditions. This is imperative, as the philosophical movement within the Western society has created the foundations for disciplines in the business and management arena (Nonaka & Takeuchi, 1995). As an aftermath of this evolution, managerial thinking in regard to knowledge creation and innovation has been affected

(ibid). In view of the foregoing, this chapter will deal with a concise inquiry into the world of Western philosophy.

2.2 An Inquiry into the World of Western Philosophy

Contrasting approaches to epistemology are possible to trace within all intellectual traditions. In Western philosophy[2], the enquiry of knowledge began in the ancient Greek period by early thinkers such as Plato (428-347 B.C.), and Aristotle (384-322 B.C) (Trundle, 1994). Regarding Plato, his philosophical thoughts are presented in the form of written dialogues. One of these, "The Republic", embodies a profound description of his theory of knowledge (Plato, 1991). He believed that the only way to reach absolute truth was through rationalistic thinking, which in turn formed the foundation for his ethical and social idealism (Kraut, 1993). According to this perspective, knowledge is deduced from rational reasoning grounded in axioms.

Conversely, his student Aristotle argued that true knowledge could only be achieved through the clear verification of a specific phenomenon (Guthrie, 1998). Thus, he emphasised the importance of sensory experience in order to establish an ultimate truth. Aristotle thought of knowledge as fundamentally empirical, whereby he stressed the importance of evidence. In his opinion, a problem should initially be approached through the collection of data, whereupon underlying principles were developed (Ibid). Hence, in opposition to Plato, who suggested that man was born with knowledge, Aristotle believed that knowledge is obtained from experience.

The basis of Plato's, and Aristotle's thoughts had a great influence on Christian theology and Western philosophy (Kenny, 1998). From their philosophical ideas, two dominant approaches to epistemology have come into existence, namely (1) rationalism and (2) empiricism (Ibid). Two fundamental distinctions can be made. Firstly, there is a basic difference concerning the origin of knowledge. Secondly, a vital divergence can be found in the methodology for how to obtain knowledge, more precisely, deductive or inductive research. During the Middle Age rationalism and empiricism gained a foothold in

[2] The term originates from the Greek *philosophia*, and means, "love of wisdom".

separate geographical areas. Whereas continental philosophers argued for the rationalistic reasoning, British thinkers put their faith in empiricism (Russell, 1989).

The French philosopher René Descartes (1596-1659) is often described as the first modern rationalist (e.g. Wilson, 1978; Russell, 1989; Kenny; 1998 Magee, 1998). He refused to accept the Aristotelian tradition, and the belief of the medieval scholastics[3] that had dominated the philosophical arena. Instead, Descartes believed in mathematics as the appropriate model for science, and stressed the importance of deduction and analytical methods. He attempted to restart philosophy in a new direction based on an absolutely certain foundation. In order to accomplish this, Descartes argued that everything that could be doubted must be rejected (Kenny, 1998). Even the belief in his own existence was doubted, until he proved the existence of his mind through the famous argument "Cogito, ergo sum"[4].

John Locke (1632-1704), one of the most important figures in British empiricism, rejected this rationalistic approach to knowledge (Spellman, 1997). He continued the empiricist tradition, and argued that everything in the human mind originates from observation of the real world. To obtain true knowledge, experimental methods must be used in order to formalise general principles. Locke contends that experience and reflection on experience is the only way to provide the human thought with ideas (Ibid). This implies that the human mind is a passive "Tabula Rasa"[5], on which information is being written upon by experimental impressions. Thus, this perspective of knowledge is completely opposite to Descartes belief that knowledge is obtained by the use of reason alone.

In the 18th Century, the German philosopher, Immanuel Kant (1724-1804), brought the two approaches of epistemology together (Stuckenberg, 1986). Kant was one of the first philosophers to articulate that knowledge is optimally obtained when both the sensory experience of empiricism, and the logical

[3] The medieval scholastics refer to the educational tradition of the medieval schools, which flourished in the 12th and 13th centuries (Oxford Paperback Encyclopedia, 1998).
[4] Latin for "I think, therefore I am".
[5] A phrase meaning blank writing-tablet, from the Latin translation of Aristotle's *De anima*

thinking of rationalism are combined. He firmly believed that knowledge must be discovered through experimental methods (Höffe, 1994). However, Kant did not agree with Locke that human beings are born with an empty mind. Rather, he suggested that our sensory experiences are actively structured, whereby he believed in the possibility of *a prior*[6] knowledge. In this sense, he can be perceived as a representative of the rationalistic perspective (Allwood & Erikson, 1999).

The 19th century constituted a period of radical developments in the area of natural sciences. In the philosophical debate, the contributions of Auguste Comte (1798-1857) became centre of attention (Alvesson & Sköldberg, 1994). He formulated the idea of positivism, characterised by an emphasis upon science and scientific methods as the only sources of knowledge. Thus, the positivistic tradition is akin to empiricism. Comte believed that all science goes through three phases of development, the theological, the metaphysical, and the positive (Magee, 1998). Progress through the stages was inevitable and irreversible, however, all sciences did so at different times depending on their complexity. The final science that had not yet entered the positivistic phase would give meaning to the others, namely sociology.

Ernst Mach (1838-1916), an Austrian physicist and philosopher of science, developed Comte's positivistic proposition. His ideas inspired a group of scientific philosophers, the Vienna Circle[7], which developed the doctrine of logical positivism (Sarkar, 1996). Central in this philosophical movement is the verification principle and its consequences. The fundamental thought within this notion is the belief that there are two sources of knowledge, (1) logical reasoning, and (2) empirical experiences. The former is analytic "a priori", while the latter is synthetic "a posterior"[8]. Thus, a statement is only meaningful if the sentence under examination is empirically proved to be true (Ibid). Consequently, metaphysic and religious propositions are meaningless, as they are impossible to verify.

[6] Knowledge that is prior to experience of the world, thus not derived from sense experience, observation, or experiment.
[7] The Vienna Circle was founded in 1924 by Moritz Schlick (1882-1936).
[8] Knowledge derived from experience is called a postiori knowledge.

However, some philosophers discarded this view, and followed the path that Kant had outlined. In Friedrich Schleiermachers (1768-1834) regard, the positivist methods could not be used in the art of interpretation (Magee, 1998). Instead, the protestant theologian and Plato scholar developed a systematic method through which texts and speech could be accurately understood. He was convinced that it was impossible to understand the whole unless we understand its parts, and vice versa. Thus, there was a need for reciprocity between the whole and its parts. This is nowadays known as the hermeneutic circle, a term used by philosophers and researchers in order to describe *"the inherent circularity of all understanding"* (The Oxford Companion to Philosophy, 1995).

Despite the fact that Schleiermacher is considered to be the originator of the hermeneutics, Wilhelm Dilthey (1833-1911) was the one who completed his work, and built the ground for interpretation as a scientific method within the humanities (Allwood & Erikson. 1999). Dilthey, who was Schleiermacher's biographer, stressed the idea that research about the cultural, and social life of human beings, is based on other values than those prevailing in the natural sciences. In one of his principle works, "Einleitung in die Geistes-wissenschaften"[9], Dilthey was the first to claim the independence of the human sciences (Harrington, 2001). Accordingly, he extended hermeneutics to the understanding of all human behaviour.

The fundamental principle within hermeneutics is to understand and describe meaning through the interpretation of human action. Despite the fact that various philosophers and scientists share this basic idea, different perspectives can be identified within the area. The German mathematician, Edmund Husserl (1859-1938) developed one of the most prominent approaches in this regard, namely phenomenology (Husserl, 1970). The philosophical method focused purely on the examination of the essence, and the content of consciousness. Thus, the distinctive feature of this philosophical movement was the endeavour to realise the presence of a phenomena, and elucidate its meaning through intention (Ibid).

[9] "Introduction to the human studies", in which he divide science into "Naturwissenschaften" and "Geisteswissenschafen".

As indicated in the foregoing, two diverse views arise from the perception of knowledge and conceptions of social reality. Thus, different images of the social reality emerge dependent on our assumptions concerning the nature of knowledge. This concern is of significant importance when discussing investigators' approach to the social world and the conclusions drawn, since each of these two views has profound implications for their contributions. In the above, we have presented some of the philosophical ideas that these perceptions of reality stem from. In the following, we aim to describe the two conceptions, and their different ways of perceiving, and interpreting the social reality.

2.3 Two Perceptions of Social Reality

As argued earlier, the conception of reality noticeably influences the contributions made within scientific research. It is significant to clarify this issue before continuing on our journey into modern philosophy of social science. At first, the underlying set of beliefs has profound implications regarding academic perception of scientific problems. Thus, the formulations of research questions are fundamentally dependent upon our specific view of reality (Sanders, et al., 1997). Furthermore, it affects the applications of research methods, and the kinds of data being sought, as well as the mode of treatment. Consequently, the viewpoint held determines, or greatly influences the principles of research.

For a long time, social science has been governed and dominated by positivistic reasoning (Alvesson & Sköldberg, 1994). As a result, scientific research has primarily been interested in the search of general laws, and determining the social or individual behaviour. Thus, the belief in a posterior knowledge was applied in the social science arena. However, during the second half of the 20th century, critics argued that the positivistic method of generating, and testing hypotheses poses a problem for researchers investigating complex social phenomena (Sanders, et al., 1997). As emotions and thoughts are difficult to observe and measure, social scientists disputed the advance of the positivistic research philosophy.

The revolt against positivism was based on the supposition that positivistic social science results in a misleading picture of the human being (Burrell & Morgan, 1979). Accordingly, the critique was a response to the worldview projected by the dominating philosophers during that time period. Although the reactions to positivism emerged from a variety of schools of thoughts, the opponents were all convinced the social reality must be understood from the perspective of the individuals involved in the research process. Thus, they rejected the thought of human behaviour as governed by uniform laws and characterized by underlining principles. In their opinion, positivistic contributions were a restricted image of social science, whereby they argued for a shift concerning the conception of reality (Ibid).

With this preview of the two dominating intellectual traditions, we will now turn to the work of Burrell & Morgan (1979) in order to present a description of the diverse suppositions underpinning them. Burrell & Morgan (1979) identify four sets of assumptions about the nature of social science, namely (1) ontology, (2) epistemology, (3) human nature, and (4) methodology. This contribution, within the area of sociological paradigm analysis, can be seen as an analytical tool with the purpose to simplify for negotiating social theory. Hence, our objective with the following paragraphs is to elucidate principle assumptions between the rival perceptions of reality.

As mentioned in the methodology, assumptions of an ontological kind are concerned with the nature of the social world, whereby it is central for how social scientists approach their subject. Thus, it is embracing the very essence of the social phenomena being investigated. Ontological questions deal with the social reality, whether it is a cognitive construction within individuals' minds, or if the reality is external and objective (Burrell & Morgan, 1979). Associated with the ontological issues are the epistemological assumptions. These can be regarded as the investigation of the very basis of knowledge, its nature and forms. Subsequently, the epistemological assumptions entail whether the nature of knowledge is hard, objective and capable of being transmitted in tangible form, or if the foundation of knowledge is personal, subjective and of a transcendental kind (Ibid).

The third set of assumptions concern the human nature and the relationship between the environment and individuals. As the human being is both the subject and the object of enquiry within social science, the consequences of these assumptions are significant. Two images can be identified, the deterministic view and voluntarism (Burrell & Morgan, 1979). The first suggests that human action is mechanistic governed by causes external to the free will. Conversely, advocates of voluntarism regard the free will as the dominant factor, whereby the human being can be held morally responsible for his or her action. The three sets of assumptions that have been outlined in the foregoing have direct implications on the fourth, namely the nature of methodology.

Methodological assumptions concern the method used to investigate and obtain knowledge of the social world (Burrell & Morgan, 1979). Thus, different assumptions about the nature of science will directly influence the researcher's choice of method. If the investigators adopt an objectivistic world-view, and perceive knowledge as being hard and tangible, they are likely to search for general regularities. This approach stresses the importance of methods designed to discover universal laws, which explain and govern the investigated reality. On the other hand, if the researchers subscribe to the subjective experience of individuals, they attempt to understand how human beings interpret the world in which they live. The emphasis in this thesis is the relativistic perception of reality. Illustrated in figure 2.1 is what Burrell and Morgan (1979: 3) describe as “The subjective-objective dimension”.

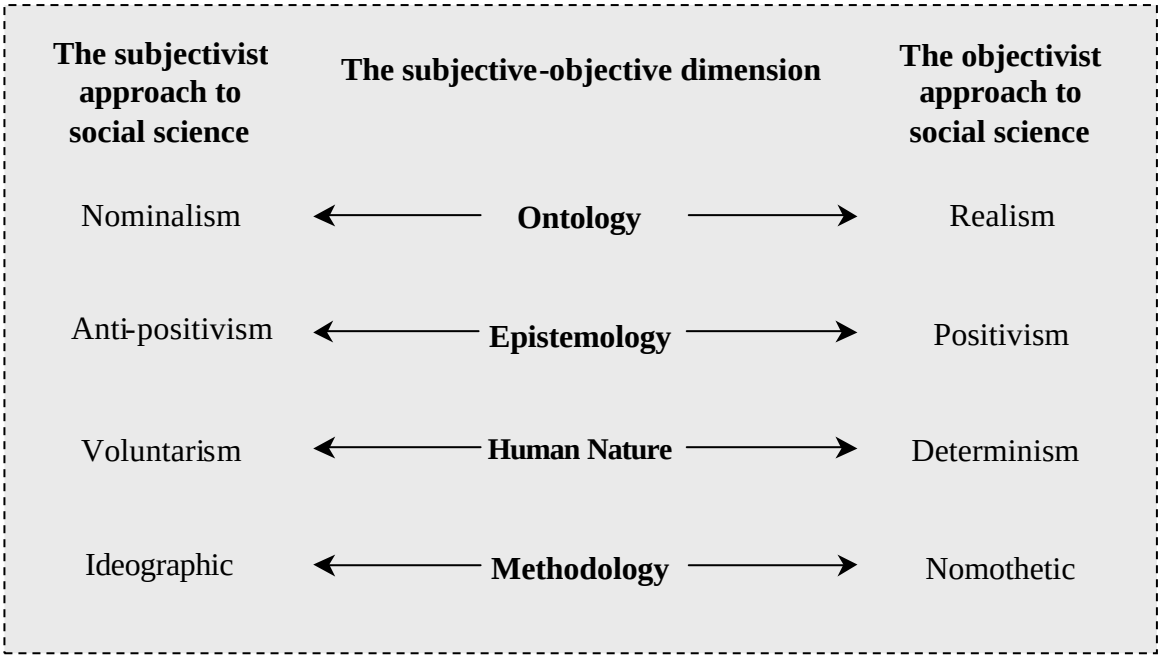

Figure 2.1 Scheme for analysis assumptions about the nature of science
Source: Adapted from Burrell & Morgan 1979: 3

The subjective-objective dimension that Burrell and Morgan (1979) seek to illustrate can easily be identified within the recent literature, which puts knowledge in the centre of attention. Swan et al. (1999) use the labels "commodity view" and "community view" in order to distinguish between these two separate tracks. The commodity view approaches the concept of knowledge as objective, tangible, and external to the individual (Ibid). As a result, the contributions within this objective tradition often focus on information processing, *"where knowledge is seen as cognitive abilities (inputs) that can be transferred and processed using technological networks to produce certain outputs"* (Swan, et al., 1999: 272).

Opposite to this perception of knowledge, the community view is based on the critique that emerged among social scientists during the last half of the 20th century (Swan, et al., 1999). Disciples of this tradition understand knowledge as subjective, and continuously constructed through dynamic social interaction. Thus, the advocates of this subjective view reject the thought of knowledge as being an object. Rather, they believe that truth can only be defined in practice, through the investigation of social activities. Consequently, there are two

parallel streams of research within the knowledge area. On one hand, the subjective side that conceives knowledge as situated and individually related, and on the other, the objective side that understands knowledge as universal and external.

What can be recognised in this regard is that the latter dominates in the huge body of literature that has emerged during recent years. As Spender (1996: 47) points out, *"With a few exceptions (e.g. Nelson & Winter, 1982; Nonaka & Takeuchi, 1995; Scherer & Dowling, 1995) organisational theorists have constrained their theorizing by adopting a positivistic theory of knowledge that takes little account of the millennia of debate about the problematic nature of human knowledge"*. Thus, the majority of organisational researchers seem to be stuck in a positivistic perspective of knowledge. Hence, the contribution to the understanding of knowledge creation and innovation is indirect.

A second implication that the objective tradition is governing the research in the knowledge arena, could be found in the following quotation, *"A core assumption in the literature on KM (Knowledge Management) is that technology can provide the network of links between geographically dispersed groups and individuals that enables effective knowledge sharing"* (Swan et al, 1999: 272). As indicated in the above, the concept of knowledge is understood as an artefact that can be handled separately from its owner. Hence, the literature tends to observe and handle knowledge as something external that can be transmitted in a tangible form.

In addition to the writings mentioned in the previous paragraphs, a number of researchers in the field of organisational theory have brought this issue to the centre of attention (Von Krogh, et al., 2000; Sanches, 2001). As pointed out earlier, the dominating rationalistic approach has lead to limitations concerning the understanding of knowledge creation and innovation. The complex nature of knowledge that has been dealt with in the forgoing seems to be a neglected aspect in the management literature, which in our view has restricted the contributions of earlier research. In order to move beyond this perception of knowledge, we have adopted the constructionist approach in selecting and giving meaning to our sensory experience.

2.4 A Social Constructive Approach to Knowledge

From a constructionist point of view, there is no such thing as a fixed, objective reality (Weick, 1995). Instead, the reality is perceived as socially constructed, a term introduced by Berger & Luckmann (1966) in "The Social Construction of reality". In the initial part, the authors introduce the problem of sociology of knowledge with allegories to an average person, a philosopher, and a sociologist. With this exemplification they seek to demonstrate that perceptions of knowledge and reality differ between these individuals as a consequence of their specific social contexts. Following from this, the authors argue that neither knowledge, nor reality are given phenomena, whereby they (1966: 3) contend that, *"the sociology of knowledge is concerned with the analysis of the social construction of reality"*.

Berger & Luckmann (1966) do not make an effort to explicit clarify their sources of inspiration to their contribution. However, we agree with Czarniawska (2000) that their work is presumably related to the philosophical thought presented by Dilthey. As stated earlier, he argued that science could be divided into two divisions, "Naturwissenschaften" and "Geisteswissenschafen". The first should be concerned with natural phenomena, while the latter with constructed elements, such as cultural and social life of human beings. As Berger & Luckmann (1966) make a clear distinction between social constructed subjects and natural phenomena, the connections to Dilthey's idea are noticeable.

The essential principle within social constructionism is the continuing dialectical[10] process, through which society is understood. Berger & Luckmann (1966) argue that this process is composed of three elements, namely (1) externalisation, (2) objectification, and (3) internalisation. In externalisation, the human beings construct the social world through gathering experiences and impressions into a meaningful whole. Objectification is the procedure where products of human activity are perceived as elements of an objective world, thus individuals forget that the social world is a product of their own creation.

[10] Discussion and reasoning by dialogue as a method of intellectual investigation. This method is exemplified in Plato's dialogues (Merriam-Webster's Collegiate Dictionary, 1998).

Finally, internalisation represents the moment when the interpretation of an objectified element express meaning, indicating that the individual adopts their experiences as originally objective.

Berger & Luckman (1966) continue by arguing that infants are not born as members of a society. Rather, individuals are *becoming* members of the society through participations in the social dialectic. The initial phase is the internalisation process in which the human being is introduced to the objectified social world. Thus, internalisation is the basis for the individual understanding of society as meaningful. This procedure continues until the products of human activity are accepted as if they were results of cosmic laws, such as natural phenomena. When the objectified world has been accepted as a non-human product the individual becomes a member of society, something that Berger & Luckmann (1966) label "reification".

We have now briefly explained the fundamental idea behind the social constructionism movement. The relevance of this notion is essential, as the social constructive approach to knowledge in social science has been applied in this thesis. Thus, our concern has been to utilize constructions in order to reach a deeper understanding of knowledge creation and innovation. The interviewees' particular perspective, or shared meanings regarding the given phenomena represent these constructions. Although the problem of sociology of knowledge is not in the centre of attention, we believe that the issues that have been dealt with are crucial in order to explain our perception of knowledge, and how this distinguishes from others in the organisational arena.

2.5 Summary

The foregoing chapters have dealt with some of the key assumptions, which characterise various approaches to the notion of knowledge. Interestingly, the contrasting epistemological traditions in the Western philosophy are mirrored in the modern organisational theory. The rationalistic perspective is based upon a dualistic ontology and an objectivistic epistemology. Literature within the area of business and management often subscribe to this view, whereby they

search for external causal factors. Thus, the relationship between the human being and the environment is seen as deterministic.

Conversely, the interpretative approach is founded on the idea that reality is socially constructed. From this perspective, human action is not conditioned by external circumstances in a mechanistic manner. Rather, it is determined by the individual's understanding of the specific situation. In recent years, insight into human cognition and organisational behaviour has been developed based on this assumption. With these different approaches to social science clarified, we shall now explore the methodological framework applied in this thesis.

3. Methodological Framework

The purpose of the following chapter is to present the research approach and strategy chosen for this thesis. Initially, the chapter configuration and research process are explained, therein our reasoning concerning relevance, rigour, and validity. Included in this are elements such as description of target audience, a discussion regarding the distinction qualitative versus quantitative research. Additionally we shed light on our philosophical assumptions, as this is considered to be of fundamental importance when choosing a research strategy. Finally, our reasoning concerning the credibility, and relevance of this research is contemplated.

3.1 Chapter Configuration and Research Process

Braf (2000) defines three important aspects, which must be dealt with when conducting research, namely (1) relevance, (2) rigour, and (3) validity. The first refers to the knowledge that the researcher is developing. It is important that this is pertinent knowledge, which provide contributions to the target audience[11]. Rigour constitutes the systematic strategic approach that the researcher chooses to utilise. Finally, the validity demonstrates how trustworthy the research is, and how well substantiated it is[12]. The following sections emanate from the previously mentioned features, however, the last category will be referred to as credibility as we find this term more accurate for this thesis. The explanation for this is described in the relevant section. However, before we embark upon this challenge, we find it appropriate to describe how we have conducted the research, from the initial phase until present.

Our interest in the area of managing knowledge derives from the autumn of 2001 when we started the Master in International Management Programme at Gothenburg School of Economics. The studies were initiated with a module namely, “Investigating the International Manager’s Arena”. During this period, we devoted a lot of time to studying and discussing international management

[11] The target audience of this thesis is defined in section 3.2.
[12] The validity is traditionally utilised to demonstrate if the observed or measured object is in resemblance with what it was meant to observe or measure. This definition derives from the natural sciences, and is not accurate in this thesis.

phenomena. This awoke our curiosity and inspired us to look further into knowledge creating processes in modern organisations. Initial examination of relevant secondary literature, such as articles and books, and fruitful discussions with academics and practitioners generated a vague research idea.

However, turning research ideas into research projects is not a straightforward process. The importance of clearly set goals and objectives is fundamental, and one of the key criteria when conducting research (Saunders, et al., 1997). In order to clarify our research focus, we carried out brain storming sessions parallel with dialogues with our tutors. This assisted us in the process of organising our ideas into a coherent statement of the research intent. With this in mind, we started the procedure of developing a research approach and choosing a research strategy. Thoughts on this matter are of fundamental importance when it comes to conducting research.

As mentioned in the previous chapter, research is to a great extent based on the researchers' assumptions concerning ontology and epistemology. It is rather apparent that the way you think about the development of knowledge has an impact on the research process. Given the applied constructionist approach, we search for individuals' interpretations of a phenomenon. To capture the understanding of each individual, we sympathise with research methods that are open and unstructured. In our case, a phenomenology approach was therefore the most suitable choice.

In order to explore the subject in as real a manner as possible, we decided to collect primary data in form of semi-structured interviews. This allows the interviewee to talk freely about a given topic, however, the interviewer determines the overall framework of the conversation. We conducted a total of 19 in-depth interviews, which were all tape-recorded. The interviewees were from different departments (lines), and were all engaged in project work. In the process of selecting the interview objects, we received assistance from representatives of the investigated company. The candidates were chosen based on three criteria, more explicitly (1) experience of project work, (2) skill group, and (3) age. The overall purpose with this was to secure sustainable and representative empirical material.

Regardless of what type of data collection method the researchers choose to utilise, it is extremely important to secure the availability of the information. This is in order to enable, and ease the analysis process, as well as make the collected data accessible for further academic investigations (Allwood & Erikson, 1999). In our case, we executed this in form of writing transcripts, which secured the accessibility, and enabled us to repeatedly scrutinise the gathered data. The transcripts include exact reproduction of the linguistic fieldwork, and constituted an extensive part of our empirical investigation. Additionally, this process makes it possible to evaluate how our findings were generated.

When it comes to the analytical process, this commenced with a brief investigation of the written material. The main objective of this procedure was to obtain a general picture of the collected data. Subsequently, we continued with identifying direct quotes, which describe various perspectives of the area of interest. These quotes were then clustered into units, which represent the variety within the material. In extension of this, the clusters were examined in detail, whereupon the essence of the phenomenon was captured. After the analysis was accomplished, the work of presenting an authoritative account of our study began. The research process is illustrated in the figure 3.1.

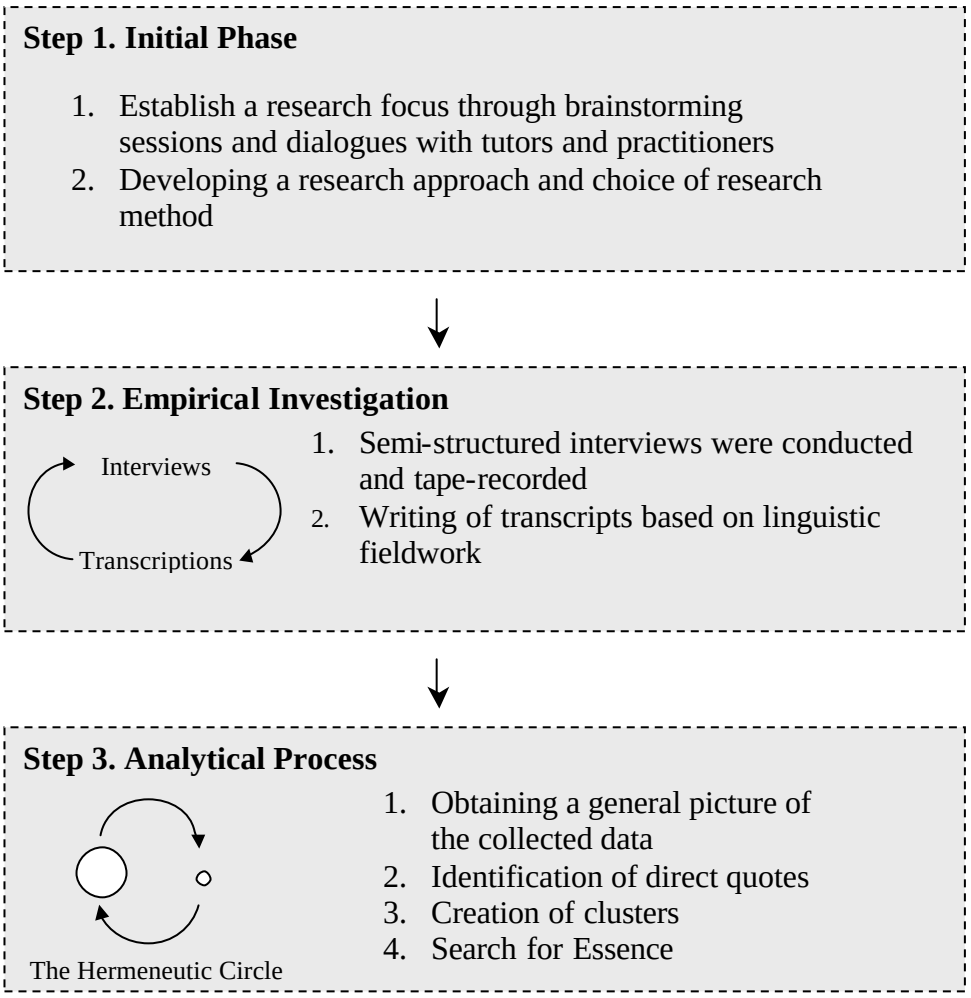

Figure 3.1. Schematic description of the research process

Our research process includes hermeneutic elements in the phenomenology approach. One direct element can be found in the analysis, and concerns the understanding of the phenomenon. Our interpretation consists of a process, which inherently circulates between the whole and its parts. This implies that our understanding is created through concrete interpretation of parts of the material, against the background of our overall impression. In turn, the overall impression is extended in tact with the number of investigated parts. Thus, the interpretations of the transcripts are central when it comes to the final contribution of the research.

3.2 Relevance

The first of the three previously mentioned aspects that will be dealt with is relevance. As earlier indicated, the crucial issue is why the subject matter is interesting, and to whom. The first part of this concern was thoroughly reflected upon in the introductory chapter. Therefore, we will pay most attention to the latter, namely *who* the knowledge concerns. According to Keen (1991) the target audience should be defined in the initial phase of every research project. Furthermore, he argues that the rigour is irrelevant as long as the relevance is not defined, and that different kinds of relevance demand diverse rigours. With this in mind, our target audience shall now be identified. Brief suggestions are also made, to how this research can be of interest to these specific addressees.

One central target group for this thesis are academics, in particular researchers and students operating in the area of business and management. Furthermore, the thesis targets practitioners, who are engaged with knowledge creating processes. Supporting innovative activities demands a thorough understanding of the process of knowledge creation and human behaviour, something that seems to have been given low priority in organisational life. In section 3.3.3 a case study is presented, where this situation applies. We hope this work can contribute in a constructive way in generating understanding about this area.

3.3 Rigour

Rigour refers to the chosen research strategy, and constitutes a comprehensive part of the methodology chapter. In the following text, we discuss the distinction, qualitative versus quantitative research, and argue for our choice concerning this matter. Next, our reasoning regarding choice of research philosophy is presented. This concerns the assumptions we have about the nature of the social world and development of knowledge, and is vital for how we have chosen to approach our research. With this elucidated, we continue with a description of the case study.

Qualitative versus Quantitative Research

The literature often distinguishes between two categories of research, namely qualitative and quantitative (e.g. Yin, 1994; Saunders, et al., 1997). It could be argued, however, that the distinctiveness of qualitative research is difficult to define (Alvesson & Sköldberg, 1994; Saunders, et al., 1997), and thus problematic to distinguish from the quantitative (Silverman, 1993). Yet, a generic characteristic can be identified. Denzin and Lincoln (2000: 3), for example, suggest the following definition, *"qualitative research involves an interpretative, naturalistic approach to the world"*. This signifies that the researchers explore their study objectives in their natural settings. Furthermore, they try to make sense of, or to understand, phenomena in terms of the meaning people give to them (Ibid). In order to capture the complexity that this implies, it cannot be collected in a standardised way like that of quantitative data (Saunders, et al., 1997).

Still, some qualitative methods emphasise the importance of categorisation during the data collection and analysis (Alvesson & Sköldberg, 1994). In this regard, it is therefore somewhat imprecise to make the distinction that qualitative research is non-standardised, whereas quantitative research is standardised (Ibid). We will not make an attempt to find further dissimilarities between these categories, but rather explain why we believe it is appropriate to classify our research approach as qualitative. Our choice derives from the aims and objectives of this work, which is to improve processes leading to efficiency and innovation by exploring individual perceptions of knowledge creation.

Thus, it is in our interest to describe, and interpret peoples' understandings on this specific topic. According to Allwood (1999), research that puts understanding in focus is often more qualitatively oriented than quantitatively. From this perspective it is therefore accurate to conclude that our research approach is qualitative. However, according to Alvesson & Sköldberg (1994) it is not only the method for collecting data that is decisive when it comes to high quality research. Rather, ontological, and epistemological assumptions are the crucial aspects when conducting research within the social sciences (Burell & Morgan, 1979; Alvesson & Sköldberg, 1994). This relies on the supposition

that *"all theories of organisation are based upon a philosophy of science and a theory of society"* (Burrell & Morgan, 1979: 1).

Research Philosophy

As indicated above, the researchers' philosophical assumptions strongly underpin the choice of research approach and strategy. Burrell & Morgan (1979: 1) state that, *"all social scientists approach their subject via explicit or implicit assumptions about the nature of the social world and the way in which it may be investigated"*. In this regard we find it appropriate to clarify our ontological and epistemological assumptions. The first mentioned area concerns the nature of being, whereas epistemology is related to the theory of knowledge (Oxford Dictionary, 1999). Both these areas give implications on how to obtain knowledge about the social world, and thus influence the choice of methodology (Burrell & Morgan, 1979; Allwood & Erikson, 1999). In the following section we present our reasoning concerning this matter.

The rationalistic approach, which has been dominating within the area of social science, is generally based on a dualistic ontology and an objectivistic epistemology (Burrell & Morgan, 1979; Schön, 1983; Sandberg, 1994). Briefly explained, a dualistic ontology view suggests that the world is external to the individual, whereas objectivistic epistemology refers to the belief of *"an objective reality ´out there´ beyond the human mind"* (Sandberg, 1994: 16). Goles & Hirschheim (2000) argue, that social science has benefited, however, more importantly suffered from this dominating approach. Sandberg (1994) shares this view, and points out that rationalistic investigations result in indirect descriptions of the research subject. Despite the critique from a number of authors (e.g. Morgan, 1980; Sandberg, 1994; Spender, 1996), researchers often subscribe to it.

As argued for above, the research within organisational theory has been limited as a result of this rationalistic tradition. In our opinion, the social world of business and management is too complex to lend itself to theorising by general laws. Rather, we believe that the interpretation of the world is socially constructed (Berger & Luckmann, 1966), and thus subscribe to the alternative

view of reality. This means that the reality is a product of social interaction, whereby knowledge is perceived as subjective, and based on human experience (Burrell & Morgan, 1979). Hence, adopting such a view entails the belief of a relativistic nature of the social world, where the human being is regarded as the creator of his or her environment.

In regard of the foregoing, an interpretative approach was a natural choice for this thesis. This implies that the researcher is attempting to get a complete picture of the phenomenon under investigation, through approaching the object of enquiry in a direct manner (Sandberg, 1994). The more accurately the individual's own experience of the subject of interest can be understood, the more likely we are to make significant contributions to the research area (Ibid). In order to explore phenomena in a direct way, the research cannot be based on a dualistic ontology, and an objectivistic epistemology. This demands a scientific approach that does not separate the individual and the reality. We agree with Berger & Luckmann (1966) that:

> *"The method we consider best suited to clarify the foundation of knowledge of everyday life is that of phenomenological analysis, a purely descriptive method and, as such, ´empirical´ but not ´scientific´ - as we understand the nature of empirical science. The phenomenological analysis of everyday life, or rather of the subjective experience of everyday life, refrains from any causal or genetic hypotheses, as well as from assertions about ontological status of the phenomena analysed … If we are to describe the reality of commonsense, we must refer to these interpretations, just as we must account of its taken-for-granted character – but we do so within phenomenological brackets"*
>
> *(Berger& Luckmann, 1966: 20)*

The phenomenological idea is dedicated to describing the structures of experience as they present themselves to consciousness (Allwood & Erikson, 1999). An exploration of phenomenology as philosophical movement needs to be set in a wider context in order to understand its underlying thoughts. Nevertheless, phenomenology as a scientific approach can be described as a qualitative method of interpreting individuals' experiences of the reality (Ibid). The method stresses that consciousness is intentional, whereby the researcher

should strive for describing the existence of objects that we have consciousness of (Burrell & Morgan, 1979). Thus, the purpose is to provide causal descriptions of phenomena, rather than seeking absolute truths, or laws.

As the title indicates, the fundamental issue within phenomenology is to capture the essence of a phenomenon. The researcher strives to describe how individuals perceive the various aspects, and more importantly, the experiences concerning a specific matter (Allwood & Erikson, 1999). Phenomenologists label these universals "essences", which represent the general aspects in the studied objects´ cognitive picture of the phenomenon (Ibid).

The Case Study

According to Yin (1994) three conditions should be considered before choosing research strategy, namely (1) the type of research question (2) the control the researcher has over the behavioural events, and (3) focus on historical, or contemporary events. The way these questions are responded to, poses indications on which research strategy[13] that is suitable to utilise (Ibid). For this thesis, we have chosen to exploit a single case study, which can be defined as follows, *"An empirical inquiry that investigates a contemporary phenomenon within its real-life context "* (Yin, 1994: 13). In the next paragraph, we will explain our reasoning concerning the above, and thereby motivate our choice.

As our objective is first and foremost to describe, and interpret people´s understandings regarding a specific phenomenon, answers can best be found if we ask questions that begin with the adverbs, "how" or "why" (Yin, 1994). It was not in our interest to manipulate the individuals` behaviour in any way, but rather to get a picture of their thoughts about the area of investigation. In this sense, the case study approach can be utilised as a potential method for creating in-depth understanding and explanations of underlying dynamics and patterns (Eisenhardt, 1989; Yin, 1994). According to Yin (1994) the described conditions speak strongly in favour of a case study research, and consequently this is what we decided to apply.

[13] Five significant research strategies are explored in this regard, namely experiments, surveys, archival analysis, history, and case studies.

One of the first challenges we were faced with regarding our research strategy was to find a suitable company to collaborate with. The contact with the cooperating organisation was established during the spring of 2002, and came into existence due to a chance acquaintance. In the last module of our studies[14], the class was engaged in a substantial project at a large, multinational enterprise. During this project, we came in contact with a Ph.D. candidate at the Fenix research institution[15]. After having established further contact, a meeting was arranged with a researcher who shared our interest in knowledge creation. Subsequent to a dialogue concerning our ideas, and how both parties could benefit from a potential collaboration, a mutual agreement was set with AstraZeneca.

3.4 Credibility

Traditionally research credibility and persuasiveness is measured in terms of the attained degree of validity and reliability (e.g. Yin, 1994; Saunders, et al., 1997). The first aspect is concerned with whether the observed or measured findings are in congruence with the theoretical definitions. The latter refers to how consistent the outcomes are, and if they would yield the same result on different occasions (Ibid). These definitions derive from positivist thinking, and are thus not possible to relate to this thesis in their original form. However, we will utilise them as a point of departure when clarifying in which sense our work can be recognised as credible.

Two different types of validity are generally referred to in accordance with the above-mentioned definition, namely external and construct validity. According to Yin (1994: 33) the initial can be defined as *"establishing the domain to which a study's findings can be generalized"*. Compatible with this definition, is the existence of a true external reality, thus the underlying positivistic thinking can be disclosed. As the constructionist view rejects this assumption, the issue is not explored in this thesis.

[14] Master of Science in International Management at Gothenburg School of Economics
[15] Fenix is an industry-university collaborative research organisation focusing on knowledge and business creation.

Furthermore, the construct validity is concerned with the establishment of correct operational measures for the studied concepts (Yin, 1994), basically in order to avoid subjectivity in the collection of data. As our aim is to try to understand individuals` interpretations of reality, the construct validity then becomes a question of securing inter-subjectivity of the collected material instead of striving for objectivity. We decided to carry out the interviews in pairs, and develop an interview guide with key areas with the aim of securing a dialogue with a natural flow, and hence try to obtain this goal.

The constructionist perspective also makes it difficult to relate to the reliability, in the sense that the collected material derives from individuals who socially construct their own values and norms through the participation in different communities of practice. In turn, this affects the way they interpret and answer the questions. It is therefore doubtful that the outcomes would be the same on another occasion. Consequently, the reliability in this thesis is more concerned with how truthful the respondents were when answering the questions. Factors that may influence this are e.g. the environment, and how comfortable the respondents were at the time of the interviews, and what bias they were exposed to.

In order to attain as high a level of reliability as possible, the respondents were given the opportunity to choose when and where the interviews should take place within a timeframe of approximately one month. It was made clear in the initial stage of each dialogue that everything that was said was strictly confidential, and that it would not be possible to identify the origin of the information. As the questions were broad, the interviewees were to a large degree able to choose what to reveal and how much, something that also might have contributed to honesty and trustworthiness.

4. Frame of Reference

The idea behind this chapter is to combine various parts of previous research into a comprehensive framework. This is in order to identify key aspects regarding the area under investigation, and thereby increase the readers' understanding of the issues put forward in the forthcoming chapters. We start with a description of the main purpose of the chapter and a short clarification of innovation. This leads us on to a presentation concerning different aspects of the concept of knowledge. Finally, learning and the phenomenon of new organisational structures are taken into consideration.

4.1 Introduction

Learning, knowledge creation, and innovation, are three areas that have received considerable attention during recent decades. Modern corporations are consistently being reminded that these issues are of fundamental importance in terms of competitive performance and organisational success. The intention of this chapter is to provide a comprehensive framework through the combination of various theoretical fragments from the above-mentioned areas. However, our purpose is not to present an extensive literature review, or a theoretical foundation for analysis, but rather to identify key aspects that will simplify the understanding of the arguments proposed in the final chapter.

As a point of departure, we consider the theoretical idea of innovation. In the previous publications that handle the dynamics of innovation, various aspects of the concept have been explored. A brief review of the different streams of research, elucidate an extensive search for principles and underlying key aspects that attempt to explain how innovation emerges within organisations (e.g. Drucker, 1985; Nohria & Ghoshal, 1997; Tidd, et al., 1998). Traditional literature on the area engages an economic perspective, and points to the relationship between innovation and market demands (e.g. Nelson & Winter, 1982). On a similar notion, more recent studies identify that the innovation process is a part of the continuous enhancement of an organisation's competitive advantages (Wang & Ahmed, 2002). This recognition of

innovation as an important aspect for organisational performance has led to a growing interest in the area (Roffe, 1999).

A recent feature in the literature on innovation capacity identifies the explicit relation between organisational structure and knowledge creation (e.g. Davenport & Prusak, 1998; Johannessen, et al., 1999; Choo, 2000). According to Nonaka & Takeuchi (1995), there is a comprehensible connection between these areas and the development of competitive advantages. To be more precise, the authors argue that knowledge creation is the key to innovation activities, which in turn result in improved organisational performance. Leonard-Barton (1995) shares the same opinion and states that knowledge is central in the innovation process. We have adopted this perception of knowledge as the basis for innovation, whereby we will yet again turn our focus towards the complex notion of knowledge.

4.2 A New Attention Towards the Concept of Knowledge

When discussing knowledge in modern business organisations we find it accurate to utilise the work of Peter Drucker (1960) as a point of departure. He was the one who coined the terms, "knowledge work" and "knowledge worker" (Drucker, 1960). More recently, in "the Post-Capitalistic Society", Drucker (1993) identifies knowledge as the new foundation of competition. In his view, knowledge is no longer seen as additional to the basic economic resources, capital, land, and labour. Rather, it should be perceived as the primary asset of an organisation. Furthermore, he claims that this makes the society of today post-capitalist[16]. Drucker argues:

> *"The single greatest challenge facing managers in the developed countries of the world is to raise the productivity of knowledge and service workers. This challenge, which will dominate the management agenda for the next several decades, will ultimately determine the competitive performance of companies. Even more important, it will determine the very fabric of society and the quality of life in every industrialized nation"*
>
> *(Drucker, 1991: 69)*

[16] According to Drucker (1993), the post-capitalist society started after World War 2, and can be recognised through its structure, social classes and social problems, which differentiates it from the two earlier centuries.

This knowledge-based view of competitive advantages launched an increasing interest in the area of managing knowledge, and resulted in numerous publications in the field of business and management. Thus, an enthusiastic attention to the subject of knowledge evolved. Nonaka & Takeuchi) contend:

> *"A keen interest in the subject knowledge has been developing in the West. An explosion of sorts has occurred in the business press in recent years, with prominent authors such as Peter Drucker, Brian Quinn, and Robert Reich leading the field. In their own ways, they all herald the arrival of a new economy or society, referred to as the `knowledge society`, by Drucker, which distinguishes itself from the past in the key role of knowledge plays within the society"*
>
> *(Nonaka & Takeuchi, 1995: 6)*

Another explanation for why knowledge has gained this new wave of attention is offered by Davenport & Prusak (1998). In their view, traditional research has observed the organisation as a "black box", by mainly focusing on the prerequisites and the result of the production, as well as the market in which the organisation is operating. In extension of this, they claim that researchers of today are more interested in the components within this so-called "black box". The most important of these components is knowledge, which is deeply rooted in the practices and routines of an organisation (Ibid).

What is Knowledge?

Despite multiple writings concerning the importance of knowledge in modern organisations, no clear, generally accepted definition of the concept exists (Sanches, 2001). As demonstrated in the previous chapters, knowledge has been subject of debate since the ancient Greek period, and is highly complex in nature. In the following section, we pursue to explore how some of the authors in the field of organisational theory perceive knowledge. We would like to point out that it is not our intention to present a final definition of the concept, but rather to discuss the meaning of it, present the various forms it can take, and highlight some of the key elements of the notion of knowledge.

Many authors in the recent literature consider the distinction between knowledge and information as a point of departure (e.g. Collins, 1998; Hurme,

1998). These terms are often used interchangeably, something that has created great discontentment among researchers. Alavi & Leidner (2001: 109) contend, *"information is converted to knowledge once it is processed in the mind of individuals, and knowledge becomes information once it is articulated"*. Some authors extend this discussion by including the concept of data. One example is Davenport & Prusak (1998) who argue:

> *"While we find data in records or transactions, and information in messages, we obtain knowledge from individuals or groups of knowers, or sometimes in organisational routines. It is delivered through structured media such as books and documents, and in personal-to-personal contacts ranging from conversations to apprenticeships"*
>
> *(Davenport & Prusak, 1998: 6)*

We agree with Braf (1998) when she questions Davenport & Prusak's (1998) explanation of the relationship between data, information and knowledge. If knowledge could be delivered through documents (see the foregoing quotation), what is then the difference between text that convey information and text that convey knowledge? The example reveals a situation of intertwined and interrelated concepts, and consequently great disapproval among the writers in the field. One of the reasons for the confusion concerning the utilisation of these concepts might derive from what Brown and Duguid (2000) refer to as "info-centricity". This expresses the vast fixation on today's development of information technology.

Moreover, we believe that an additional explanation for the confusion could derive from the positivistic view of the concepts. This dominating approach has resulted in an oversimplification of the above-mentioned terms, as it considers knowledge to be the result of a systematic analysis of our sensory experience of an external reality (Spencer, 1996). In contrast to this view of knowledge, we agree with Magnusson (2000: 23) that information should be perceived as *"…a flow of messages (Nonaka & Takeuchi, 1995) related to states of our perceived reality, while knowledge is defined as beliefs, which can be influenced by information, but also has room for insight, creativity and misconception (Fransman, 1994)"*.

In this understanding, knowledge is not possible to define universally. Instead, it is related to our individual perception of reality, which is mediated by prior expectations, assumptions and social experiences (Berger & Luckman, 1966). Thus, knowledge is accepted beliefs within a social context. By employing this view of reality, one perceives knowledge as something that is defined in the activities of and interactions between individuals. Consequently, knowledge is seen as something produced and held collectively, rather than individually. As proclaimed earlier, we perceive the reality, and thereby also knowledge, as something that is socially constructed.

Different forms of Knowledge

When investigating the concept of knowledge, it is also interesting to note some of the different forms it can take. Nonaka & Takeuchi (1995) present a well-known distinction in which two categories of knowledge are identified, more specifically, (1) tacit knowledge and (2) explicit knowledge. The first refers to context-specific and personal knowledge that exist in people's minds. Polanyi (1966) introduced this term in an attempt to explain that humans can know certain entities without the ability to pass it on to others. As he expresses it, *"we know more than we can tell"* (Polanyi, 1966: 4). Due to Nonaka & Takeuchi`s strong influence in the field of managing knowledge, the meaning of the term tacit knowledge has been used in a more general sense. The latter, explicit knowledge is the type that is easily transferable in formal, systematic language. Because its origins and basis are known, it is easily identified. Nonaka & Takeuchi (1995) additionally stress the importance of sharing knowledge between individuals in organisations:

> *"…tacit knowledge and explicit knowledge are not totally separate but mutually complementary entities. They interact with and interchange into each other in the creative activities of human beings…human knowledge is created and expanded through social interaction between tacit knowledge and explicit knowledge"*
>
> *(Nonaka & Takeuchi, 1995: 61)*

From this point of view, it is interesting to note that Nonaka & Takeuchi (1995) use the term tacit knowledge in a completely different manner compared to

Polanyi (1966). Nonaka & Takeuchi's method for knowledge conversion[17] is based upon the assumption *"that knowledge is created through the interaction between tacit and explicit knowledge"* (Nonaka & Takeuchi, 1995: 62). Thus, it is partly founded on the idea that tacit knowledge is possible to transform into explicit knowledge. This thought contradicts Polanyi`s original definition of tacit knowledge as something which humans are not able to express.

Individual versus Organisational Knowledge

A controversial issue in the writings on knowledge has been the differentiation between individual and organisational knowledge. This issue has been discussed by researchers over the last decades. Initially, there was a discussion whether knowledge exists on an organisational level, or if knowledge is coupled to the individual (e.g. Cyert & March, 1963). However, as the articles in this issue attest, there has been a shift to a more specific discussion in which the organisation is perceived as an epistemological system.

Authors such as Argyris & Schön (1978; 1996) and Levitt & March (1988) have pointed out the importance of organisational learning. The main idea is based upon the assumption that learning occurs in all kinds of organisations. Peter Senge (1990) developed these thoughts in his theory about learning organisations. He argues that it is not enough if a minority of the employees increase their knowledge; instead he suggest that all employees must expand their understanding through continuous learning (Ibid). So, if organisations learn, is it then possible to talk about organisational knowledge? In the search for an answer to this question, the relationship between individual and organisational learning must be considered.

According to March (1991), organisations learn from their employees. He argues that the employees accumulate their knowledge over time, and this knowledge is then reserved within the routines, norms, rules and forms of the organisation. However, Grant (1996) does not really agree with March (1991). Instead he shares with Simon (1991) the similar view that the development of

[17] Knowledge Conversion is a dynamic model where human knowledge is created through socialisation, externalisation, internalisation and combination. These modes are dependent on the transferring of tacit to explicit knowledge, and vice versa (Nonaka & Takeuchi, 1995: 62-70)

knowledge is an individual activity. Simon (1991: 125) contends, *"All learning takes place inside the individual human heads; an organisation learns in only two ways: (a) by the learning of its members, or (b) by ingesting new members who have knowledge the organisation didn't previously have"*. In his view, one way of deriving value from this intangible asset is through strategies that manage knowledge. Presently, this is one of the most popular issues in the management literature.

4.3 The Concept of Learning

Learning is, as in the case of knowledge, a concept on which various perspectives can be taken. Despite the wide understanding of the essential meaning with learning as a phenomenon, there exists no consensus regarding the contents, nor is there a generally accepted definition. Instead, there are a number of perspectives and approaches that "explain" or "describe" what is construed as learning. We agree with Lave & Wenger (1991) that learning should be perceived from a socio-cultural perspective. Thus, there is a notable connection between individual learning and the context. More specifically, the individual way of acting is to be understood as a result of the social environment. Learning can therefore be seen as a co-operative act, rather then a strictly individual one.

In this sense, it is in our interest to focus on *how* to learn, rather then discussing *what* to learn. Therefore, Kolb's (1984) theory of experiential learning will be utilised in order to describe the actual process of learning. Kolb's (1984) model of experiential learning, illustrated in figure 4.1, focuses on the transformation of experience to knowledge. Thus, he includes the term experience to the learning discussion in order to explain how knowledge is created. As Kolb (1983: 38) express it, *"Learning is the process whereby knowledge is created through the transformation of experience"*. The process consists of four steps, which aim to explain the underlying foundations of the learning procedure.

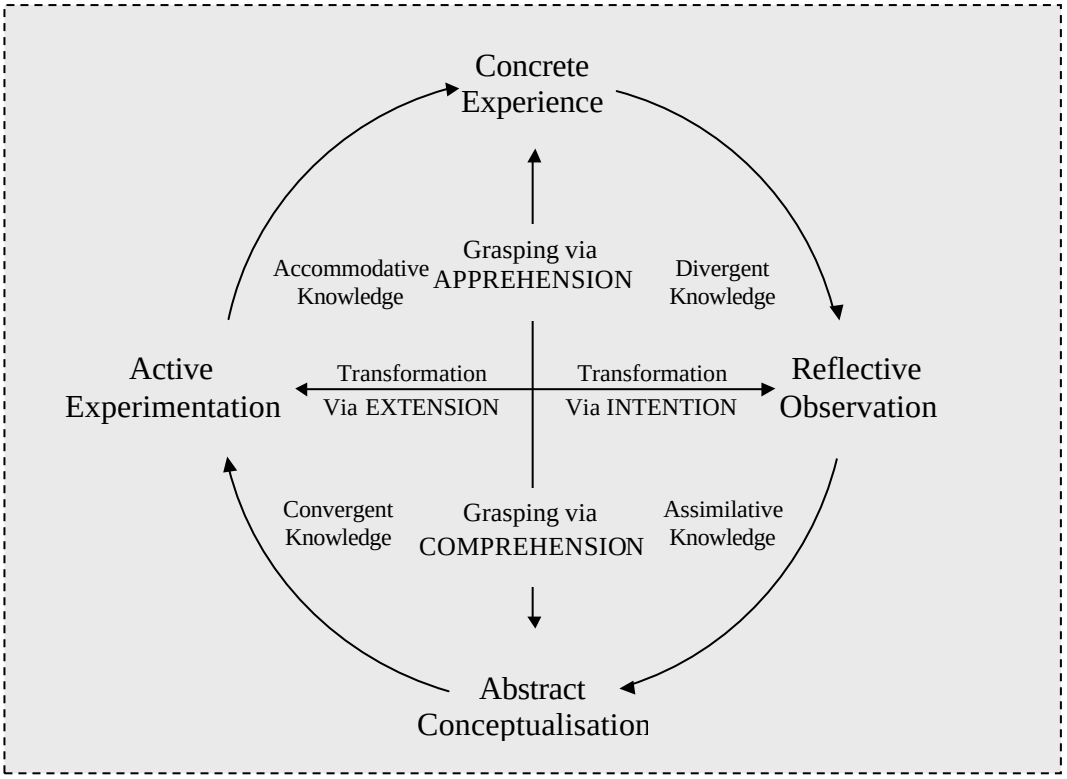

Figure 4.1 Structural dimensions underlying the process of Experiential Learning
Source: Adapted from Kolb 1984: 42

Furthermore, Kolb (1984) states that there are two dimensions of experience, one subjective and one objective. The first refers to the individual's cognitive apprehension of a phenomenon, while the latter represents an objective truth in the context in which the individual exists. The objective description of a phenomenon is, however, a rather problematic notion as it refers to a dimension of experience assumed to exist as a theoretical construction. Nevertheless, this objective side can be understood as a social construction, putting the learning of the individual into its context. From this perspective, the social environment is giving meaning to the learning situation that occurs.

Hitherto, the focal point has been on the individual learning process. Nonetheless, as stated earlier, Lave & Wegner (1991) argue that learning needs to be seen as situated. Indeed, individual action is an important indicator of learning taking place, however, it is of less value if it cannot be diffused in its social setting. For that reason, we will now turn to the distinctive contribution

of Argyris & Schön in order to depict learning in social contexts. The authors have been concerned with examining conscious and unconscious reasoning processes. Argyris & Schön (1974; 1978) assert that individuals are often not aware of the cognitive "maps" that determine their actions. Thus, there is a difference between what people say they do, and what people actually do. In order to explain this phenomenon they formulate the "theory of action".

To clarify their proposition, Argyris & Schön (1974; 1978) argue that there are two kinds of theories of action. Firstly, the espoused theories are consistent with the guiding values that individuals claim to follow. Secondly, theories-in-use, are those that can be inferred with what individuals actually do. Thus, the authors suggest that people are not aware of the general ideas that govern the deliberate human behaviour. The governing variables involve values and basic assumptions, which in turn determine the individual's choice of action strategy. Consequently, the theory-in-use decides our reaction to a certain experienced situation. In terms of learning, it occurs when a mismatch is detected between the intended consequence and the actual outcome.

As shown in the introductory chapter, Argyris & Schön (1974; 1978) distinguish between two responses to this mismatch between intention and outcome. The first, "single loop learning", is essential learning that results in questioning the action taken in order to satisfy the governing variables. Thus, mismatches are corrected through the changing of action without questioning the underlying values. Conversely, "double loop learning", entails a response where the governing variables are being examined and changed, which in turn creates new theories-of-use. Figure 4.2 illustrates the processes of single-loop and double-loop learning.

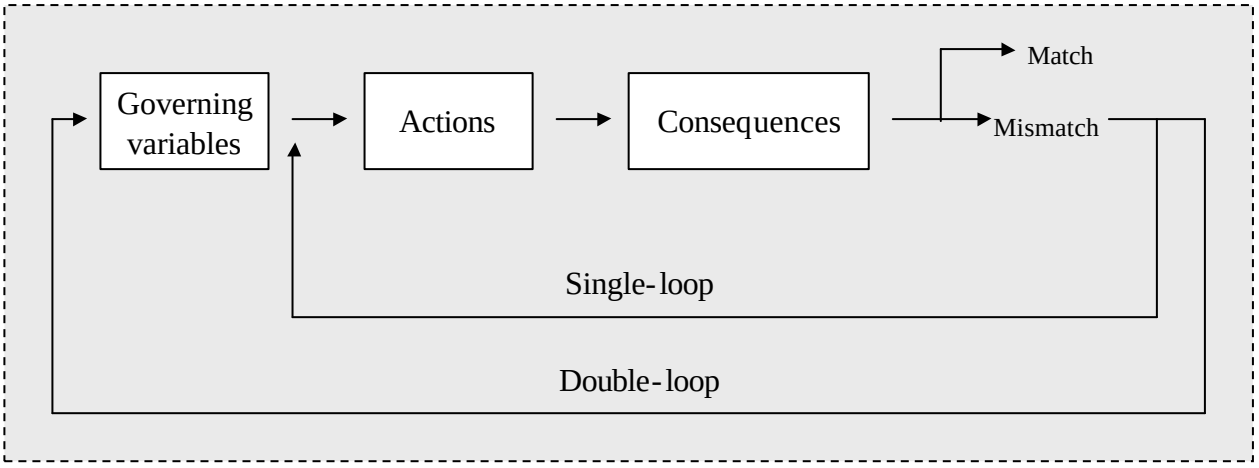

Figure 4.2 Schematic description of Single-loop and Double-loop learning
Source: Adapted from Argyris 1992: 68

Interesting with the above reasoning, is that it encompasses and is applicable on the individual, group, as well as organisational level. In the group or organisational setting, Argyris & Schön (Argyris, 1982) believe that the above theories of learning can be deduced into two different ways of conceptualising and approaching interpersonal interactions. In practice, the authors have found that most individuals in organisations use patterns of reasoning characterised by defence mechanisms and rational acting, which is designated as Model I. In contrast, they recommend a desirable direction characterised by internal commitment and exchange of valid information, which they label Model II. The passage from single-loop to double-loop learning is called "deutero-learning", which in essence means "learning how to learn" (Argyris & Schön, 1996).

After having provided a concise description of Argyris & Schöns ideas regarding single-loop and double-loop learning, additional aspects in the area of learning in organisations shall now be considered. In particular, we continue by exploring a view of learning as a social construction, often referred to as community of practice (Lave & Wenger, 1997; Brown & Duguid, 1998). From this perspective, learning is based on the supposition that "*engagement in social practice is the fundamental process by which we learn and so become who we are*" (Wenger, 1998: iii). Teece (1994: 15) shares the same view and

suggests, "*Learning processes are intrinsically social and collective phenomena*". This approach to learning draws attention towards the work context in order to increase the understanding of how people learn in organisations.

Prior contributions have shown that most organisational learning takes place in communities of practice (Lave & Wenger, 1991; Orr, 1996; Steward, 1996; Wenger, 1997; Henning, 1998; Brown & Duguid, 1998)). A community of practice represents the social context in which individuals act, and more importantly, learn together. Through mutual engagement, members of a community of practice develop a shared understanding of work and purpose, which is profoundly connected to what is learned within the group. According to Wenger (1998), there are two principle ways of acquiring this shared understanding, through participation or through reification. Thus, mutual social learning is embedded in experience (Wegner, 1997).

In this regard, human learning and adaptation processes are consistent with sharing experience. The idea is in line with Kolb's (1984) experiential learning, which emphasises the central role that experience plays in the learning process. This reasoning brings forward a renewed understanding of the process of organisational learning, based on the thought of knowledge as embedded in practice. Learning from this viewpoint, involves sharing and exchange of ideas through experience (Hendry, 1996). The framework for this process is the community of practice, which will shape and establish the culture, the practice, and the ideas.

However, an organisation does not consist of one community of practice exclusively. Rather, overlapping communities exist across the formal boundaries, which leads to noteworthy affects on how organisational learning should be approached (Lave & Wenger, 1997). Given the community of practice perspective of learning, it is not unexpected that modern organisations find it difficult to facilitate the process. Part of the challenge relies on adopting a new perspective of management, leaving the formal descriptions of work behind (Brown & Duguid, 1991). Although many organisations have recognised this challenge, and are trying to break free of the traditional modes

of operation, most of them seem to have severe learning disabilities. This brings us to the topic of the next section, namely administrative shapes.

4.4 Administrative Shapes

As indicated earlier, traditional pyramidal structure and managerial controls were designed to achieve predetermined goals (Morgan, 1996). Consequently, managerial success was defined in terms of maintaining a stable system, without losing control in any sense. Prominent models of this approach to organising are based on standardisation of work processes, which in turn restrict innovation capabilities. However, changing situations call for new action, and different forms of organisation (Styhre, 2002). When flexibility and capacities for creative action became essential in order to stay competitive, focus was changed from efficiency towards innovation. Burns & Stalker (1961) established the distinction between "mechanistic" and "organic" approaches to organisation, in order to divide the different styles of management.

Since the introduction of the new flexible organisational idea, numerous researchers have dealt with the potential to make success through its implementation, whereby various forms of "organic" organisations have emerged (Morgan, 1996). Most of the contributions rest on a project-oriented solution, with the primary purpose to execute complex tasks in an uncertain and turbulent environment. There has also been a tendency to focus on commitment and interdependence. One of the most well known new organisational forms goes under the name "matrix organisation". Such an organisation is composed of a functional or departmental configuration, combined with a project team structure. The functional divisions represent the columns of a matrix, while the project teams create the rows, hence the title of matrix organisation.

The two above-mentioned strategies for organising appear to be the alternatives for management of today. However, none of these are accurate when striving for innovation and knowledge creation (Nonaka & Takeuchi, 1995). The hierarchic structure is designed to support decision making at the top, hence dealing with explicit knowledge. The latter, emphasises on independent work and autonomy means, which in turn results in the development of tacit

knowledge. Instead, Nonaka & Takeuchi (1995) suggest that the process of knowledge creation and innovation should be facilitated through self-organising teams.

Brown & Duguid (1991; 1998) and Wenger (1998) argue that self-organisation is a fundamental characteristic of communities of practice. It represents the ability of a social system to acquire new properties through reorganisation into a modified structure, without any constraint of authority (Lesourne; 1991). More precisely, self-organising systems correspond continuously to environmental changes, by initiatives from the individuals within the group as a reaction to the new regulations (Wheartley & Kellner, 1996). Naturally, self-organising forms take place in all organisational life. However, the dominating management philosophy of today does not support or encourage this form of structuring.

5. The Empirical Study

The main objective of this chapter is to present the outcome of the data collection at AstraZeneca. We start with a presentation of the company and the research setting. In extension of this, we provide a concise explanation of the data collection process. Finally, a summary of the primary research is described in form of four interrelated entities, namely (1) Leadership, (2) Continuous Learning, (3) The notion of Care, and (4) The Ability to Act. The contents of this chapter build the foundation for the subsequent conclusion.

5.1 The Research Setting

AstraZeneca came into existence in 1999 due to a merger of two pharmaceutical companies, namely Astra AB and Zeneca Group PLC. Today, the corporation has more than 50,000 employees worldwide. One of the main objectives is to provide innovative, and effective medicine within significant fields of healthcare. The largest therapeutic fields are cancer, cardiovascular, central nervous system, and gastrointestinal. The R&D centres are located in Europe and the US, and comprise more than 10,000 employees. Our empirical study was conducted at one of the company's Swedish R&D sites, namely AstraZeneca R&D Mölndal with over 2000 employees. The company is organised in a matrix structure, and consists of two components, more explicitly project and line management. Specialists representing all the relevant functions (lines) provide the projects with competence. Our primary data stems from a selected group of representatives from assorted lines and positions, with experience from diverse projects.

In the pharmaceutical industry, competitive advantage is connected to the company's ability to generate new knowledge and know-how, which will create patents and new medicines capable of becoming marketable products (Roth, 2002). This procedure concerns a number of stages, from the discovery phase to final support of the product. The initial process is the recognition of a substance or molecule with potential for further research. After pre-clinical testing of the substance, the drug is given to a number of patients and voluntary, healthy individuals. When the effect of the new drug is confirmed,

the role of the pharmaceutical product needs to be established in the current therapy. This is done through a comparison of the new drug with reference substances and placebo.

In view of the previous description, it is not unexpected that the development process is a very complicated, and time and resource consuming process. At AstraZeneca, there has been an increasing amount of initiated clinical projects within the organisation. In turn, high demands on the performance of the project teams. What has been recognised is that some projects have worked exceptionally well regarding construction of knowledge, whereas others have been less successful in this regard. Against such a background, it was in our interest to investigate what creates successful, and less successful project teams. However, before we start to describe the empirical data, we shall briefly present the process of data collection and analysis.

5.2 Summary of Data Collection Process

The empirical data derives from 19 in-depth interviews of approximately one-hour duration, and equivalent to 240 pages of transcripts. Since we sought to obtain understanding about how individuals perceive the phenomenon of knowledge creating processes leading to efficiency and innovation, we found the phenomenology approach most suitable. Consequently, we strived to be as open as possible during the data collection, whereby we decided to conduct semi-structured interviews. The respondents were asked to describe one successful and one less successful project group they had attended. In order to secure a dialogue with a natural flow we composed an interview guide with a few additional questions in case of discomfited situations[18]. However, it was in our interest to let the interviewees lead the conversations.

After the data collection was accomplished and the answers were transcribed, we studied and clustered the collected material independently. This was in order to maintain an as accurate picture of the gathered data as possible. Subsequent to this, we discussed our findings, and carried out a brainstorming session. From this, four interrelated key areas were identified and labelled, to

[18] The interview guide can be viewed in the appendix

be precise (1) Leadership, (2) Continuous Learning, (3) the Notion of Care, and (4) Ability to Act. Hence, the classification of the empirical data is a result of our mutual interpretation of the collected material. We firmly believe that this method has enhanced the confidence of our findings, as well as increased the creative potential of the research.

An important aspect to take into consideration in this regard is that the interviewers` interpretations of the respondents` answers may include bias (Magnusson, 2000). As only the exterior structure in terms of spoken words is reflected upon, it is not possible to guarantee that we have understood exactly what the interviewees wanted to express in all situations. However, in order to prevent misinterpretations from the authors, we have wittingly utilised a large number of citations[19]. In the following sections, the essential aspects of the collected material shall now be described.

5.3 Leadership

The most conspicuous of the four areas that were brought forward after the finalised data collection, was leadership. According to the respondents, the importance of good project leaders was significant both for job satisfaction and commitment, as well as for the quality of the work. Hence, the achievement of goals and the prosperity of the various project-groups are to a large degree dependent on the respective leader. Compatible with our empirical data, central leadership qualities are the ability to listen and give feedback, and have trust and confidence in the subordinates. Additionally, the leader should make sure that all group members get to speak during meetings. A project member articulates in this way about the role of the leader:

> *"The project leader sets the standard. If you have a leader who is impossible to work with, the whole project becomes awkward … The leader must delegate work, have confidence in the employees, possess knowledge and be forward going. Of course, there are different ways of governing. Sometimes the leader more or less is the whole project, other times he/she has a more delegating role, more like a coordinator. Both variants can work dependent on how extensive the project is, and the people sitting in it … but generally I think important characteristics for a leader is the ability to*

[19] In this regard it should be mentioned that the quotations have been translated from Swedish into English.

administer the project, include everybody … let them be heard, and take in all aspects, not just doing their own thing."

It was a common belief that the role of the leader was central when it comes to the success of project groups. The leader must not only obtain knowledge about human beings and how to govern a team, but also possess the ability to communicate in a clear way, trust his/her colleagues, and take responsibility. This is in order to create confidence in the group and hinder misunderstandings. Nevertheless, as pointed out in the subsequent quotation, the respondents specified that there was ´no best way´ of governing a group. Rather, the leader must be able to adjust to different personalities, and situations. One of the project leaders reflects in the following way about his/her position in a recently completed project:

" I think the project went so well because I trusted my colleagues. I believe all of them have the capacity to fulfil what they are obliged to do, and when I have told or asked them to do something, I don't have to go in and interfere all the time … one should not make them feel controlled. On the other hand, one cannot let people do whatever they want, there must be some kind of dialogue. As a leader you must decide how you want it. I said it this way; if you have a problem, you can come to me and I will help you solve it. If I don't hear anything, I expect that you can deal with it. It worked."

Overall, the coordinating leadership style seemed to be preferred among our interviewees. They stressed the importance of an open and flexible team climate, where the leader puts his/her faith in the mind and hands of the co-workers. It seemed like the interviewees` experiences from positive teams were often put in connection to leaders who were open for individuality and knowledge creation. In order to accomplish this, the respondents stressed the importance of companionable leaders, who listen and share responsibility with his/her team-members. However, in the case of problems within the group, the leader was expected to carry most responsibility. In resemblance with the previous, one of the interviewees explains:

"At the end of the day, the project leader is the one who is responsible for making the team work. He or she should be the one who gives the signal if something is wrong … but the leader must never accept that the team is not working, your responsibility as

a leader is to make it work! There are several ways to find a solution to a problem, we cannot have project leaders who are just watching in silence."

Despite the fact that the respondents generally had good experiences with their project leaders, there seemed to exist dissatisfaction concerning how some of the project-groups were governed. In this sense, leaders who were controlling appeared to have hindered the progress of the group and caused great frustration among the other group members. Leaders of this kind were extremely focused on short-term objectives, and utilised a controlling and inflexible leadership style to reach them. In turn, the group members got tired and "burned out", or quit the team:

"Once, we had a project leader who administered the group with an iron will. He/she thought that the deadline was more important than anything else, and pushed the other group members to the utter limit … this led to a massive conflict, where people were forced to choose sides. As a result, most of them left the company, also the project leader. I would call the leadership style this person used `management by fear`, but the whip is only effective for a short while!"

As described in the foregoing, leadership can affect the group climate negatively, and lead to conflicts where even top management gets involved. Among our interviewees it was a common belief that the controlling role that some project leaders apply is not healthy for either the group atmosphere, or the result of the work. Another employee confirms:

"Our project leader is very pushy, everything he/she says is law. This person is extremely dominant, and does not like it when someone argues against him/her. What he/she says is correct even if it is wrong in regard to the area I am operating in. Then a conflict breaks out; after all, I must be able to stand for what is written in the report. However, if the leader doesn't get it the way he/she wants, it is taken further up in the organisation, and then back to me… the difficult, long way… nasty trickery."

In summary, the respondents pointed to some leadership qualities that they regarded as crucial. These were i.e. the ability to listen, and communicate in a clear way, to be able to adjust to different people and situations, and most importantly, to trust and have confidence and in their employees. Qualities that

were not appreciated were focus on short-term goals, the inability to trust the employees and delegate work, and not taking the required responsibility in uncomfortable situations.

5.4 Continuous Learning

A second area that was highlighted as a necessity in order to foster successful project teams was learning. The interviewees considered several aspects within this field, which we have chosen to label "Continuous learning". This basically implies the ability to learn from experience, and places priority on noticing, adapting and learning from practice. Interestingly, it seems like the main learning processes take place on an individual level. However, the respondents mentioned that some attempts were made to improve learning processes also on an organisational level. The subsequent paragraphs demonstrate different aspects regarding the concept of learning, which was brought up in our interviews.

First of all, there was some discontentment regarding how individuals were presented to projects that were embarking, or already in progress. Both newcomers and experienced employees revealed a concern regarding how they were introduced to new projects. There was a clear indication of dissatisfaction connected to the job descriptions provided by the company. Additionally, there also seemed to be a demand for a higher degree of personal assistance in the initial phases of the projects. Even experienced personnel were forced to spend a lot of time and energy on finding help and support, which in turn hindered them in keeping the tight deadlines. This created a high level of stress and sometimes frustration among some of the employees:

> *"I think it is a little worrying that everything has to go so fast. Our problem in this department is that we are lacking competence in the specific area I am operating in. I guess my department is not prioritising training new personnel … I have to run around and ask a lot, and learn in that way. I didn't get any introduction to these new tasks, but I guess that is the risk when you stay in the same department for a long time. You are told that because you have been here for a while, you can deal with it, but the fact is that I am working in a completely different way now than I used to."*

From the previous quotation we understand that the learning process is a very time consuming process. Since the research process is very complex, it most often takes several years before each individual has gained sufficient experience to be able to take hold of it. However, in order to keep the tight deadlines, there was restricted time left for assisting bewildered colleagues. A respondent who was employed rather recently points to the need for improvement in this specific area:

> *"In the beginning I felt a little confused, didn't know who to turn to when I had questions … I guess I could have asked my study coordinator, it would have been handy with a little better introduction."*

In an attempt to amend this situation, a tutorship function has been put into practice in form of "study management adviser" positions. The idea is accurately that the advisers shall assist newcomers, and others who need guidance by being available for answering questions and providing assistance. Nevertheless, this advising arrangement is still confined and the function is only on trial. Hitherto, it appears to be a successful device:

> *"People seem to be very glad that they have someone to turn to. It hasn't always been like this, earlier we used to go to our ´neighbours´ whenever we needed help. The problem was that this person normally had so much to do, we are overloaded with work so it is very hard to function as an instructor at the same time. Partly you are new yourself, and then all of a sudden you are supposed to be an instructor, maybe after only a year. Also, one is so engaged in the project, it is difficult to find time for anything else. I think this new adviser arrangement is a discharge for everyone, even for more experienced personnel."*

As indicated in the title of this section, the learning process is continuous, and does not end when the introductory phase is over. On an individual level, one of the methods to gain new skills was to set high and demanding goals, and try to reach them. This process is also based on the leadership, and the extent to which the leader encourages the individuals in the group. One of the study leaders told the following related story about one of the colleagues in his/her last project team:

> *"One of the group members was actually so nervous about doing the presentation that he/she felt bad physically. He/she stayed home a couple of days before the presentation, so I told him/her ´Listen, I would love to see you do it, but if you really feel that bad about it I can do the talking for you´ but he/she replied, ´No, it is ok, I will do it´. Afterwards this person came to me and said, ´I am really glad I did this thing, I mean, you can't move on unless you put yourself under pressure sometimes´."*

On an organisational level, the learning activities were rather restricted. The respondents indicated that there was a need for knowledge creating activities, and pronounced the importance of reflecting about what has been done and why, in order to generate and share knowledge. Moreover, they stressed how this action could assist the organisation to maintain, and share knowledge between individuals and projects, and thus contribute to a higher degree of learning. However, despite the high awareness of it, reflection seminars do not seem to be a top priority:

> *"We were supposed to evaluate our last project, reflect over the problems that we had faced. Everybody realised that we had problems with communication, and the distribution of work. Because another study is currently being carried out similarly, we were going to do something about this evaluation session now, but I haven't heard anything yet … I suppose there is no time as usual! It is mentioned quite often, but no one does anything concrete to go on with it … I think it could have been good, though!"*

This indicates a situation of stress and heavy workload. As a result, there was unfortunately limited time for individual competence development and reflection of the work processes. Another respondent expresses how the experiences from the project work is squandered like this:

> *"I think the company has failed a little in trying to document experiences … create different functions, such as guidelines in order to direct experienced people. The living experience, learning through working together… I wish this practical knowledge could be transferred from one project to another…I feel that there is a tendency that the experience is getting lost."*

From this, it is possible to note a worry concerning exchange of experience between projects. Despite some efforts made in order to institutionalise knowledge sharing in form of management advisers and reflection seminars, the learning responsibility seems to remain on the individual level. This view is supported further in the following quotation:

> *"I guess it is an old habit in this building that knowledge, project knowledge, is not captured. This way it remains on an individual level, everyone who has participated takes their experience with them when they leave the project."*

Despite the somewhat negative response regarding the subject of organisational learning capabilities, the organisation appears to have made improvements in recent years. There seems to be high awareness of the problem, and the fact that the organisational activities mentioned previously have been initiated, indicates that the company is making progress in this area. Detailed job descriptions and complex computer networks are not sufficient when it comes to the life long process of learning:

> *"It's hard, some things you just have to practise. You can't learn everything in instruction guides, right? Like tennis, for example, you have to go out there on the court and practise … Even if I am brilliant at tennis I can't tell you how to do it. It's impossible to teach you in one day just by explaining what to do. You have to do it by yourself, `hands on`."*

5.5 The Notion of Care

As the headline indicates, the third aspect that the interviewees found crucial in order to achieve good project teams, was an open and "caring" environment. With the notion of care we are referring to a context, which is characterised by mutual trust and empathy. Thus, care is created within the social environment, through individuals interacting with each other. According to our interviewees, the relationship between the members of a project group has a great impact on the working process, as well as the final result. Taking care of each other seems to be understood as fundamental in creating enjoyable work, and hence productive and innovative projects.

The ability to trust and support your colleagues was thought of as essential values to create a productive and caring environment. Some pointed to the notable connection between a positive group climate, and the final outcome of the working process. One of the respondents talked about the importance of this in the following way:

> *"I believe it is alpha and omega. Firstly, it is important to have a climate where people can say whatever they want. In order to get an as good result as possible, people have to dare to come with suggestions … I mean, that is what we want isn't it? … If the group climate is bad, I don't think you will get the same enthusiasm, the same motivation, and the same willingness to contribute. To dare to say things that might contradict what others have suggested, to discuss and finally to come up with a solution, and say, `Yeah, lets go!`"*

However, despite the wide understanding of a caring context as essential when working with knowledge creation and innovation, it is sometimes a problematic and even neglected issue. From our empirical study, we understood that an open social context is tough to create, and depends on a variety of factors, such as the composition of people in the group, and how well they know each other, the groups ability to share a common task, flexibility, and mutual dependency. It was apparent, that these context-specific aspects have implications on the working procedure, and more importantly, the individuals' emotions. To feel respected, and appreciated, appears to be closely related to the feeling of belongingness in the team. On the same notion, one respondent describes:

> *"Respecting and listening to your colleagues is very important when working in teams. You shouldn't have to go around and be afraid of someone, no matter what role you have you should feel respected. The work is not a one-man job, but we are all in it together and nobody's part is more important than others. To feel that you are really contributing with something is one of the prerequisites for a well functioning team."*

In addition to the previous, there was a concern regarding the behaviour in unreliable and closed atmospheres. Participants of such communities often have competitive and cold attitudes towards the others. Some of the respondents mentioned stress and work pressure as a possible reason for the lack of care in the project teams. People simply do not have time to bother with

the more soft variables. This could be compared with the optimistic and trustworthy behaviour that is disclosed in successful teams. In such a social context, the members of the team often feel motivated, enthusiastic, and committed to the task. Strong relationships between all the individuals were suggested as one possible cause:

> *"We were enthusiastic, we were cracking jokes, we were laughing, a lot! It wasn't always deadly serious… even when we were doing important and work related things, we allowed ourselves to have fun as well. We even met in our spare time for different activities. In our team, we had a retired researcher who was very dynamic, open and talkative. Somehow he managed to include everyone in a good way…"*

It was commonly felt, that a crucial aspect in order to create care in the group is the individuals' ability to cooperate, tolerate and listen to the other group members. As seen in the above quotation, it is apparent that one person alone may affect the social climate in a positive direction[20]. However, an open and caring climate can also take different forms. Beyond the efforts of extrovert and assertive individuals, the notion of care must be integrated on a project level. Thus, everyone in the team must contribute. In the following quote, it will become obvious that care can be created without making a big effort:

> *"It is the small things that make the difference, like when the project leader looks at me when I enter the room and says, ` Hi, nice to see you again`… immediately you get this confirmation that makes you feel welcome in the team. This isn't all that apparent actually."*

In resemblance with the previous example, creating care between the colleagues does not demand a coordinated exertion of efforts:

> *"I had just arrived in a phase, when I had an awful lot to do. I didn't feel so good either, so my colleagues started worrying about me, and asking me how I was feeling. I think the atmosphere is good there are so many nice, caring people here. When I was ill they sent me flowers. That was nice, something I hadn't expected at all."*

[20] Our interviews show that this situation is also valid in the opposite direction.

Another significant aspect that was brought up in connection to care in project groups was communication. It was commonly felt that an encouraging context was of fundamental importance in order to enable open exchange of ideas, and experience in complex activities. This could be achieved through ensuring that roles and expectations were clearly defined in the initial phase of the projects. Another element that was mentioned in this regard was the informal contact with the other group members, and how well the group members knew each other. This has a large impact on how the individuals approached each other. To be able to articulate the true feelings regarding specific issues, or take on a questioning attitude, it is necessary to have some kind of mutual understanding. Ways of establishing this is through spending time together outside the projects, e.g. at lunch or coffee breaks. Care constitutes the foundation for open discussions and respect for others' opinions, and thus leads to more fruitful conversations:

> *"Solve the problems that arise, I guess that is what we are doing … Sometimes we have quite heavy discussions, but it is all matter-of-factness. It is important that all the team members are listening and respecting others' opinions. Naturally, you don't have to agree with everyone, but it is important that you pay attention and take in their arguments."*

5.6 Ability to Act

The last category involves aspects that deal with individuals, and group's ability to act. By this we mean to what extent the employees are given space for creativity, and innovative thinking. Despite the fact that the company is organised in a matrix structure, and innovation is one of the main objectives, the respondents showed some disapproval concerning the high level of control in the decision-making processes. Although this matter can be exposed as necessary, the empirical data reveal that a crucial aspect regarding creativity is to a large extent related to individual responsibility. This is not always dealt with in a satisfying manner.

The degree to which the employees are allowed to make decisions independently is not as high as most of them desire. A common belief among the respondents is that the decision-making process is restricted as a

consequence of the organisational structure, as well as the influence of premises upon which decisions are made. The notable connection to the level of efficiency was pronounced explicitly a number of times, as in the subsequent quotation where a respondent reflects about how the company can provide support throughout the organisation:

> *"I guess AstraZeneca could support the organisation by improving the decision-making processes, I mean, make it more efficient in the sense that when something is decided, you don't have to check with someone further up in the organisation … I don't know, I just think it is a little unnecessary to have to ask for permission every time we want to make a decision."*

Hence, there seems to be an upper-level ability to influence the evaluation process, and thereby the issues that are being addressed. By determining which decisions the lower levels are allowed to make, the higher authorities considerably affect the actual outcome of the project work. Thus, the innovative process is being restricted as a result of provided guiding principles and predetermined courses of action. Some limitations were also revealed in regard to the transparency of the provided guidelines. A respondent contends:

> *"I think there are authorities from the top who want insight downwards. Recently, we received some new guidelines about how things are to be decided. Maybe that will make it more clear what we are allowed to decide in the sub teams, and what must be decided further up."*

The meeting structure was an additional aspect that was brought up concerning the ability to act. From our interviews, we understood that there were seldom discussions in the initial phase of projects concerning determination of roles, neither were the working areas of the other group members thoroughly discussed. Instead, people seemed be very concentrated on their own area of operation. To assist the individuals in their work, management provided all employees with a set of standardised "job descriptions":

> *"I think it is important, especially in new projects, to go through everyone's expectations … that you make some kind of team charter with everyone's responsibilities, so it becomes clear what you can expect the others to deliver. I think this can be a way to prevent misunderstandings. I guess we have the ´job*

descriptions´… However, I'm only familiar with the job description of the skill that I represent, and it is probably the same situation with my colleagues."

As indicated, confusion sometimes exists regarding the responsibility that the individual possesses within the project team. Indeed, the provided descriptions of the working procedure will clarify this issue to some extent. However, more importantly, it will also constrain and limit the ability to act, which in turn will negatively influence the innovative process. Our empirical data clearly shows that interdependence is essential for the individuals, and highly connected to the final outcome of the project work. Thus, the importance of individuality needs to be considered when working in innovative projects:

"The co-workers are the same, but they function differently depending on the restrictions put up in the beginning. After a while you are so settled on it, ´this is how we work in this study´ and ´this is how we do it in this´… The individual is pretty important to include also. In order to make all teams special, to get a better team spirit, I think it's important to do make room for individuality."

The ability to act seems to be one of the fundamental concerns that many individuals share when discussing successful versus unsuccessful teams. As indicated, this subject can be handled on both the individual, and the project level. Interestingly, the problematic issues on both levels can often be deduced to be the possibility to autonomously set the objectives, and make decisions regarding the working procedure. Hence, the interference of authorities from higher levels appears to constrain the innovative procedure. The final remark from one of our respondents is clear:

"The organisation is driven from the highest level, and I don't think it allows for innovation. I believe it's because it's driven top-down … I think there is a fantastic competence at AstraZeneca, in my opinion we have extremely competent personnel. If everyone was given their scope of ability I think we would be…hmm, what can I say, open for more innovation."

6. Conclusions

In this final chapter, the central contributions of this thesis are discussed and summarised. Initially, the key aspects concerning the problem area and the purpose of the study are highlighted. Following this, we elaborate on the outcome from our empirical research. Finally, we bring the implications of the findings to a higher level in order to enhance our understanding regarding organising in managerial settings.

6.1 Key Research Issues

Theorists and practitioners have become institutionally committed to the development of efficient, and innovative processes. Nevertheless, fostering such activities demands a thorough understanding of knowledge creating procedures. Although different scholars have stressed the complexity of knowledge, this aspect seems to be forgotten in the continuous stream of research in the business and management area. One essential explanation can be deduced to be the rationalistic approach that has been dominating in the management literature. This approach is based on a dualistic ontology, and an objectivistic epistemology.

If we adapt such a view about the nature of social science, we accept that human action is mechanistic or deterministic governed by external circumstances. From this perspective, research is fundamentally a search for identification and definition of aspects that reveal the relationship between human behaviour and the environment. Nevertheless, during the last years, it has been possible to witness a shift in scientific approach towards a more interpretative view on human action. In this sense, the human nature is perceived as socially constructed, which means that the social reality is subjective and based on human experience. However, a real shift has not been instigated, whereby practitioners are still acting within a rationalistic framework.

Deriving from this fact, most of the contributions within the field of management are based on a simplified view of the complex nature of

knowledge. Consequently, there is an evident need for enhanced understanding of knowledge creation procedures in order to improve the processes leading to efficiency and innovation. On the same notion, the purpose of this study can be summarised as an interpretative approach to knowledge creation, by exploring individual perceptions of this phenomenon. The main objective is to examine and describe essential aspects of innovative procedures, and out of this enhance our understanding regarding organising in managerial settings. It is against such a background, that we have chosen to utilise a phenomenological approach to investigate how individuals interpret knowledge creating projects in search for innovation.

The purpose with this final chapter is to discuss the contributions of the conducted study. More specifically, we aim to present and elaborate on some essential aspects that were brought forward by our respondents. Although, the forgoing chapter summaries the collected empirical data, we believe it is of interest to expose what we consider to constitute the central characteristics of knowledge creation. This is in order to contribute to the general understanding of knowledge creating procedures in organisations.

6.2 Managerial Implications

Our research approach has given us the possibility to investigate the area of concern from a direct point of view. Following from this, the generated findings indicate that facilitating innovative teams is a very complicated task for modern organisations. An implication for managers is that they need to consider human behaviour as subjective, in order to foster knowledge creation and sharing between the employees. Knowledge is socially embedded, whereby rationalistic attempts to manage knowledge are most likely to fail. Based on the collected empirical data, we will now suggest guiding principles for organising innovative project groups in managerial settings.

In the studied case, we found that the fundamental influence on the project work stems from the internal authority. This becomes particularly significant when comparing an individual's experience within diverse project teams. Interestingly, it is not one typical leadership approach that determines whether

the project team works exceptionally well, regarding construction of knowledge. Rather, different types of leaders seem to be preferred dependent of the constellation of the team members, as well as the given assignment. Nonetheless, it was possible to trace a general leadership quality within most of the well-functioning project teams.

The important aspect that our interviewees articulated was the leaders' ability to *trust* the individuals in the team. The relevance of this idea becomes remarkable when considering the other issues that were brought forward by the respondents. Trust gives the impression to be the basic value upon which job satisfaction and internal commitment is built. Furthermore, there is an apparent connection between dependency of the group, and an open, flexible team climate. In this sense, confidence in the subordinates was an essential element when encouraging individuals to gain new skills and experiences. This brings us to the next topic of discussion, namely continuous learning.

The empirical study gives a clear indication that learning is a subject with high priority. Persuaded by the idea that continuous learning is elementary, both for the individual and for the organisation, many respondents promote the importance of the notion. However, while some individuals have embraced the idea, the organisation is somewhat caught in the traditional thinking. In an attempt to conquer this problematic situation, the organisation has initiated improvements regarding learning capabilities. However, the challenge is to give confidence to the employees when they are questioning internal norms and underlying assumptions. Noticeably, this is a paradox that many organisations are struggling with today.

To understand the significance of continuous learning, the notion needs to be considered on different levels. As seen in the case, some respondents emphasise the importance of learning in the acclimatisation period. Indeed, this kind of experience is essential in order to adapt to the social context, and thereby increase confidence and self-reliance. However, the question of embracing uncertainty in a manner that allows innovative action to emerge requires challenging of the core principles. Hence, this kind of learning

involves the previously mentioned paradox. This implies that managers need to put faith in the mind and hands of the co-workers.

In another pattern of response, the interviewees reveal a concern regarding the interaction on the individual level. The engagement in this question, indicates that it is important to consider the impact that the social context has on the working process, peoples emotions, as well as the final outcome of the project. In particular, it was found that an open and *caring* environment is tough to construct, especially under situations of stress and heavy workload. Considering the inherent nature of humans, this relationship is not unexpected. This implies that organisations need to foster empathy and mutual trust within the project teams, especially under circumstances like the pharmaceutical industry.

A final implication that can be pointed out to managers concerns the level of control in knowledge creating projects. The findings from the interviews indicate a connection between responsibility, and the level of innovative thinking. Evident in the material is that a constrained ability to act, negatively affects the knowledge creating process. Interestingly, the reasoning is applicable to the individual, as well as on the group level. The problematic issue seem to be deducible to the opportunity to autonomously set the objectives, and make own decisions. Thus, interference from authorities seems to constrain the innovative procedure, and consequently the final outcome of the project work.

6.3 Concluding Remarks

While an increased understanding of innovative processes can create a sense of the need for change, organisations require new actions in order to get there. Given what has been pointed to previously, earlier contributions regarding organising in managerial settings can be the subject of debate. The question of which activities to foster is naturally the key issue for mangers in modern organisations. Instead of striving for efficient knowledge utilisation from a rationalistic perspective of human behaviour, organisations need to incorporate a subjective view of reality in a constructionist manner. Thus, leaving the

simplified view of knowledge as objectivistic and capable of being transmitted in a tangible form.

In developing mindsets, and abilities suitable for this task, a considerable coordinated exertion of efforts has to be made. This leads us on to the identified weakness of the organisation in the centre of attention. Based on the findings generated by utilising phenomenology as an interpretative approach, we have observed an essential restriction concerning the knowledge creating procedure. In an attempt to understand the cause behind the existing constraints, it is necessary to consider an undesirable perception of the organisational structure. More specifically, hidden hierarchical structures that exist in the mind of the individuals.

In each interview, it has been possible to detect the influence of underlying mental models stemming from the bureaucratic approach to organisation. This idea becomes evident when the negative aspects brought up by the respondents are being considered. Controlling behaviour, short-term objectives, heavy workload, and restricted ability to act, are some issues that are incorporate within the organisational culture. To understand this hidden governmental structure of everyday behaviour, the management need to approach the employees in an as open manner as possible. This is in order to see, think, and shape the organisation in a new direction that allows for a higher degree of innovation.

On the same notion, it is interesting to examine the reasons behind the existing hierarchical thoughts. From our perspective, it can be perceived as an unintentional act deducible to the rationalistic philosophy. Hence, the individual does not intend the negative consequences of the taken actions. Rather, the behaviour is socially constructed due to the dominating rationalistic approach within the western society. Although, the implemented matrix structure has eliminated the formal separation between the superior and the subordinate colleagues, the relationship seems to exist on a mental level. Conclusively, one may design and construct an open, flexible organisation form, however, behaviour according to the ideals is stuck on the community level.

Another possible explanation rests on the suggestion that prior achievements have affected the underlying value system of the organisation. There is little doubt that earlier accomplishments increase the ambition to reach further progress. An implication of this is that the formal leaders, and experienced individuals, contribute to the reinforcement of the power structures, which in turn constrain the ability to change. Thus, they use their positions to influence the working procedure, through fostering the premises that govern how colleagues think, and more importantly, how they act. From a constructionist standpoint, this is not imposed on the individual, but rather shaped during the course of social interaction.

In view of the above discussion, there seems to be a general need for a new philosophy of managing and organising human resources in organisations. The ideas presented in this thesis encourage us to understand human action as constructed in social contexts, and thereby reject the dualistic ontology and objectivistic epistemology. Accordingly, the challenge is to leave our rationalistic thoughts, and devote considerable attention to the interpretative view of human behaviour. This is the essence of modern organisations in search of innovation.

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Interview Guide

Date:

Name:

Skill/Role:

Time at AstraZeneca:

Positive Experiences

From your experiences with project work at AstraZeneca; can you think of a project that you thought functioned exceptionally well compared with other projects? Explain…

Can you describe the working structure of this project?

Why did you find this project positive?

Why do you think these positive aspects occurred?

How did the group climate affect the results?

Negative/ Less positive Experiences

From your experiences with project work at AstraZeneca; can you think of one project that did not work well compared with other projects? Explain…

Can you describe the working structure of this project?

Why did you find this project less positive?

Why do you think these negative aspects occurred?

How did the group climate affect the results?

Final Questions

How do you think AstraZeneca can assist in creating better group climate or prevent negative group climate?

What is the concept of knowledge to you? Define…

What makes group work enjoyable?

If you were king/queen at AstraZeneca, what would you do to improve the organisation?