THE IMPACT OF MENTORING ON KNOWLEDGE SHARING IN THE STEEL MANUFACTURING INDUSTRY

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DECLARATION

This report is the sole effort of the author and complies with requirements of the University Research Writing Standard.

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ABSTRACT

South Africa, like many other countries, is also faced with issues such as the shortage of skilled workers or employees. The availability of the skilled workforce has decreased over the past years and will continue to decrease over next several years. In order to have a long-term sustainable competitive advantage, organisations will have to be able to retain knowledge and skills, especially when knowledgeable people are going to leave the organisation. This can be achieved by means of proper knowledge sharing and knowledge management strategies. There is little published work in the area of knowledge sharing and management in the steel-manufacturing industries. The study sets out to *determine the relationships between formal mentoring, informal mentoring, knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy* and also to determine whether people who have and have not experienced formal and informal mentoring experience these variables differently. A cross-sectional survey design was employed to obtain the desired research objectives. We recruited a convenience sample after permission was granted to conduct the research. Participation was voluntary and anonymously. A total of 300 participants were targeted and a response rate of 45 % was achieved. The findings indicated that people in formal mentoring program enjoy helping others; informal mentoring is positively related to organisational rewards; knowledge sharing was found to be positively significantly related to enjoyment in helping others and knowledge self-efficacy; and that people with high knowledge self-efficacy are more oriented to helping others. The *t*-test results indicate that there are statistically significant differences between the people who have experienced formal and informal mentoring compared to those who have not.

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CHAPTER 1: INTRODUCTION

This chapter includes background to the research, the problem statement, research objectives, research methodology, limitations and report outline.

1.1 BACKGROUND TO THE RESEARCH

The issue of skills shortage is a global issue. Manufacturing industries globally are faced with difficult problems such as decreased domestic and export orders, production lines and units are cut down, reduced working hours and no overtimes, and job shedding. Mature economies such as North America, Japan and Western Europe have been negatively affected by these economic down times (Baldauf-Cunnington & Hubbard, 2011). Among the top 10 concerns for the next coming months for the manufacturing business sectors, are decreases in consumer demands, increased cost of energy, increased cost of labour, and a shortage of skilled workers (Thornton, 2009).

In order to survive and successfully make and increase profit under these tough business conditions, business sectors (globally) have implemented the following initiatives – product innovation, cost cutting, productivity review, pricing strategy, new management structures, strategic investment, outsourcing, brand re-design, expansion of workforce, and the use of external consultants (Thornton, 2009).

South Africa, like many other countries, is also faced with issues such as the shortage of skilled workers or employees (Anon, 2007). In order to survive and successfully make and increase profit under these tough business conditions, South African companies have implemented the following initiatives - cost saving exercises such as encouragement of early retirement for the aging workforces (voluntary packages), cutting working hours (normal and overtime), cutting team-building year-end functions, and issuing tenders to low cost suppliers (service and products).

Recent research (Calo, 2008) has indicated that the following issues will further negatively affect the strategic management of organisations' workforces, knowledge and hence the long-term survival of the organisations:

- The loss of knowledge due to the retirement of baby boomers
- A projected shortage of workers with critical knowledge
- An overall aging workforce.

In order to have a long-term sustainable competitive advantage, business organisations will have to be able to retain knowledge and skills, especially when knowledgeable people are going to leave the organisation (Civi, 2000; Anantatmula, 2007). This can be achieved by means of proper knowledge sharing and knowledge management strategies. Knowledge management is important to ensure long-term survival and competitiveness of the organisation (Martensson, 2000). Many researchers have indicated that knowledge sharing combined with an effective knowledge management system will lead to sustainable performance of the business operations (Smith, 2001; Bender & Fish, 2000; Goh, 2002; Finestone & Snyman, 2005).

Many business organisations understand the importance of knowledge, especially tacit knowledge, on the organisation's sustainable competitive advantage (Cavusgil, Calantone & Zhao, 2003). Tacit knowledge has a very strong positive influence on innovative capabilities development (Rhodes, Hung, Lok, Lien & Wu, 2008). Companies are investing a lot of money in an attempt to ensure that the right knowledge is created, used or shared and stored. However, these investments (network technologies and local databases) are only effective in managing explicit knowledge and not tacit knowledge. Tacit knowledge is highly personal and extremely difficult to formalise and codify and this makes it difficult to share with others (Civi, 2000). It appears then that the best approach to capturing tacit knowledge is to engage the people responsible for creating, using and sharing knowledge, i.e. face-to-face communication (Brokel & Binder, 2007; Connell, Klein & Powell, 2003; Edvardsson, 2008).

1.2 PROBLEM STATEMENT

The shortage of skills in South Africa has always been a problem (Anon, 2007). The company where the research will be conducted has, over the past years, lost and will

continue to lose their tacit knowledge and skills in the late fifties due to the large number of skilled employees leaving and joining competitors (high-salary offers from competitors), and early retirement of skilled employees to pursue other personal interests. These issues cannot be ignored or prevented from taking place. The company may ensure effective transfer of knowledge and skills by addressing the factors that contribute positively to knowledge sharing. This will help the company to retain knowledge should the knowledgeable employees decide to leave the company. A company that addresses these factors will have a sustainable competitive advantage that will lead to sustainable performance of the business (Smith, 2001; Bender & Fish, 2000; Goh, 2002; Finestone & Snyman, 2005).

There is little published work in the area of knowledge sharing and management in the steel-manufacturing industries. The company where the research will be conducted has implemented interventions such as mentoring, balance-scorecard (reward systems), and communication forums to try and encourage knowledge sharing. The results of this research will help the company to understand the relationship between mentoring and knowledge sharing and the strength of such relationships. Various knowledge sharing enablers have been identified by several researchers such as reward systems (AL-Alawi, Al-Marzooqi & Mohammed, 2007), and mentoring (formal and informal) (Karkoulian, Halawl & Mccarthy, 2008). One can only wonder if these factors play a role in knowledge sharing in the organisation where the research will be conducted.

1.3 RESEARCH OBJECTIVES

Primary objective

The study sets out to *determine the relationships* between the different types of *mentoring, and knowledge sharing, and* to determine impact of formal and informal mentoring on knowledge sharing experiences.

Secondary objectives

- To determine the relationship between types of mentoring, knowledge sharing, organisational rewards, enjoyment in helping other, and knowledge self-efficacy;

- To determine whether people from formal mentoring programmes experience knowledge sharing differently from those who had no formal mentoring; and
- To determine whether people from informal mentoring programmes experience knowledge sharing differently from those who had no informal mentoring.

1.4 RESEARCH METHOD

The research methods that will be employed to reach the above-mentioned objectives consist of two phases, namely a literature review and an empirical study.

1.4.1 Phase 1: Literature review

A literature study will be conducted on knowledge, knowledge management, knowledge sharing and knowledge sharing enablers such as organisational rewards, enjoyment in helping others, knowledge self-efficacy and mentoring. In order to create a better understanding of these concepts, the literature study will cover topics such as definitions, models, functions, benefits of mentoring and knowledge sharing and also the relationships between mentoring (formal and informal) and knowledge sharing, organisational rewards and knowledge sharing, enjoyment in others and knowledge sharing and finally between knowledge self-efficacy and knowledge sharing.

1.4.2 Phase 2: Empirical study

This section describes the empirical study and focus on the research design, participants, measuring instrument, and statistical analysis.

1.4.2.1 Research design and approach

The research design that will be used is a quantitative cross-sectional approach where questionnaires will be used to collect data. The selected research method is suitable because the focus of the research will be on examining the relationships

between formal and informal mentoring and knowledge sharing and its enablers and how different groups experienced the variables.

1.4.2.2 Measuring instruments

Organisational rewards, enjoyment in helping others and knowledge self-efficacy were measured using the seven-point scale that was adapted from Lin (2007a) and modified to five-point scale (1 = *strongly disagree*, 5 = *strongly agree*) to fit with the other measured items of the research. Mentoring and knowledge sharing were measured using the five-point scale developed by the Organisation for Economic Cooperation and Development (OECD) (1999).

- ***Organisational rewards*** were measured using the four items adapted from Lin (2007a) and that was derived from Hargadon, Davenport and Prusak (1998). These were defined as the extent to which employees believe that they will receive extrinsic incentives for sharing knowledge with other colleagues. Lin (2007a) obtained a composite reliability coefficient of 0.75. A sample item from the questionnaire is “Sharing my knowledge with colleagues should be rewarded with a higher bonus”.

- ***Enjoyment in helping others*** was measured using the four items scale that was adapted from Lin (2007a) and derived from Wasko and Faraj (2000). This scale measures the employee perceptions of pleasure obtained through sharing knowledge. Lin (2007a) obtained reliability coefficient of 0.84 for these items. A sample item from the questionnaire is “I enjoy helping colleagues by sharing my knowledge”.

- ***Knowledge self-efficacy*** was measured using the four items scale that was adapted from Lin (2007a) and developed by Spreitzer (1995). This scale measures the employee judgements of their capability to share knowledge that is valuable to the organisation. Lin (2007a) obtained reliability coefficient of 0.86 for these items. A sample item from the questionnaire is “I have the expertise required to provide valuable knowledge for my company”.

- ***Mentoring (formal and informal)*** was measured with the four items scale developed by the OECD (1999). The rating used is a five-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The scale was used to measure the perception of formal and informal mentoring and their role in knowledge sharing. Karkoulian *et al.* (2008) found an alpha measure of for reliability coefficient of 0.95. Sample items from the questionnaire are "Formal mentoring results in greater motivation, more commitment and better performance on the part of the mentees" and "Learning acquired from informal mentoring is deeper, richer and stronger".

- ***Knowledge sharing*** was measured with the four items scale developed by the OECD (1999). The rating used is a five-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The scale was used to measure the extent to which knowledge is shared amongst the employees. Karkoulian *et al.* (2008) found an alpha measure of for reliability coefficient of 0.89. A sample item from the questionnaire is "My organisation develops a culture that promotes sharing of knowledge".

1.4.2.3 Statistical analysis

The complete statistical analysis was conducted with the help of the two suitable computer software programs (Statistica, 2009; SPSS; 2009). Cronbach alpha coefficients were determined to measure the reliability of the measuring instruments. Spearman's rank order correlation coefficient was calculated to give an indication of the relationships between measured variables. Spearman's, r, is a nonparametric measure of association that doesn't depend on assumptions such as normality. Interpretations are based on different r-values. The r-value of ±0.1 indicates small effect, ±0.3 indicates medium effect and ±0.5 indicates large effect (Field, 2009:170). If $r > 0$, this implies positive relationship, while $r < 0$ implies negative relationship. In this study the sample was not a random sample from the population, but an available sample. Therefore statistical inference and p-values are not relevant and effect sizes indicating significant differences were rather used. P-values are reported for completeness, but focus of interpretation will fall on effect sizes. Also a t-Test analysis was performed to determine the practically and statistical significance

difference between the group that have experienced formal mentoring and the one that has never experienced formal mentoring.

1.4.2.4 Participants

The target participants for the study will consist of employees with a certificate, diploma, degree and or post-graduate qualifications. The study population will consist of participants from a larger sample of available employees of the large steel-manufacturing company in South Africa. The target group will consist of all full time employees from different departments and divisions of the company, and convenient sampling technique will be used. This is a non-probability sample technique and it will be used because participation will be based purely on the availability and willingness of participants.

1.5 LIMITATIONS OF THE STUDY

The study will mainly be conducted at one site of a Steel manufacturer (there are four sites in total). This means that the employees selected will only represent the portion of the entire population of the organisation and it is in this regard that the reader should be cautious when interpreting the results and generalising for the whole company. The cross-sectional design that will be used pose a limitation because it is confined to a specific point in time, i.e. it provides us with a snapshot of the population at a single point in time. The characteristics of the population change continuously and as a result the cross-sectional design do not reflect the actual situation over a time period. Since the research method that will be used has a limitation for causality, the reader should be cautious with the results of the study because they can only be used to indicate the relationships (between mentoring and knowledge sharing) and will not be used to speculate whether mentoring causes ease of knowledge sharing.

1.6 CHAPTER DIVISION

The remaining chapters in this mini-dissertation are presented as follows:
Chapter 2: Literature review

Chapter 3: Empirical study
Chapter 4: Results and discussion
Chapter 5: Conclusions and recommendations

1.7 CHAPTER SUMMARY

In this chapter the background to the research, problem statement, research objectives, research method, limitations, and chapter division were discussed. The next chapter will review knowledge, tacit and explicit knowledge, knowledge management, organisational reward systems, enjoyment and orientation to help others, knowledge self-efficacy, mentoring and mentoring and knowledge management to facilitate a better understanding of these concepts.

CHAPTER 2: LITERATURE REVIEW

In the previous chapter the background to the research, problem statement, research objectives, research methodology, limitations and report outline were discussed. In this chapter, knowledge, tacit and explicit knowledge, knowledge management, organisational reward systems, enjoyment and orientation to help others, knowledge self-efficacy, mentoring and mentoring and knowledge management will be discussed to facilitate a better understanding of these concepts. The literature survey will also be conducted to indicate the relationships between the variables: knowledge sharing, organisational rewards, enjoyment in helping others, knowledge self-efficacy and mentoring.

2.1 INTRODUCTION

Organisations should recognise knowledge as a valuable resource and must develop ways to tap into the collective intelligence and skills of employees in order to create a greater organisational knowledge base. Knowledge is seen as a critical factor affecting an organisation's ability to remain competitive in the new global markets (Bollinger & Smith, 2001). Knowledge management is very important because knowledge is one of the strategic resources that can produce a sustained long-term competitive advantage for a business organisation (Lin, 2007b; Karkoulian *et al.*, 2008). Mentoring has become an increasingly common method that may be an effective way to facilitate knowledge creation and sharing, according to Bryant (2005).

2.2 KNOWLEDGE

2.2.1 Concept of knowledge

In order to analyse the value of knowledge, Zak (2002), breaks knowledge into the following three categories:

- *Core knowledge*: minimum required for the company to stay in business and will not offer long-term advantage.

- *Advanced knowledge*: enables a company to be competitively viable and will help with differentiation between competitors.
- *Innovation knowledge*: enables the company to lead its industry and competitors.

According to Smit and Cronje (2003), the interaction and interdependence between the business organisation and its environment can be described by using systems theory, as illustrated in Figure 2.1.

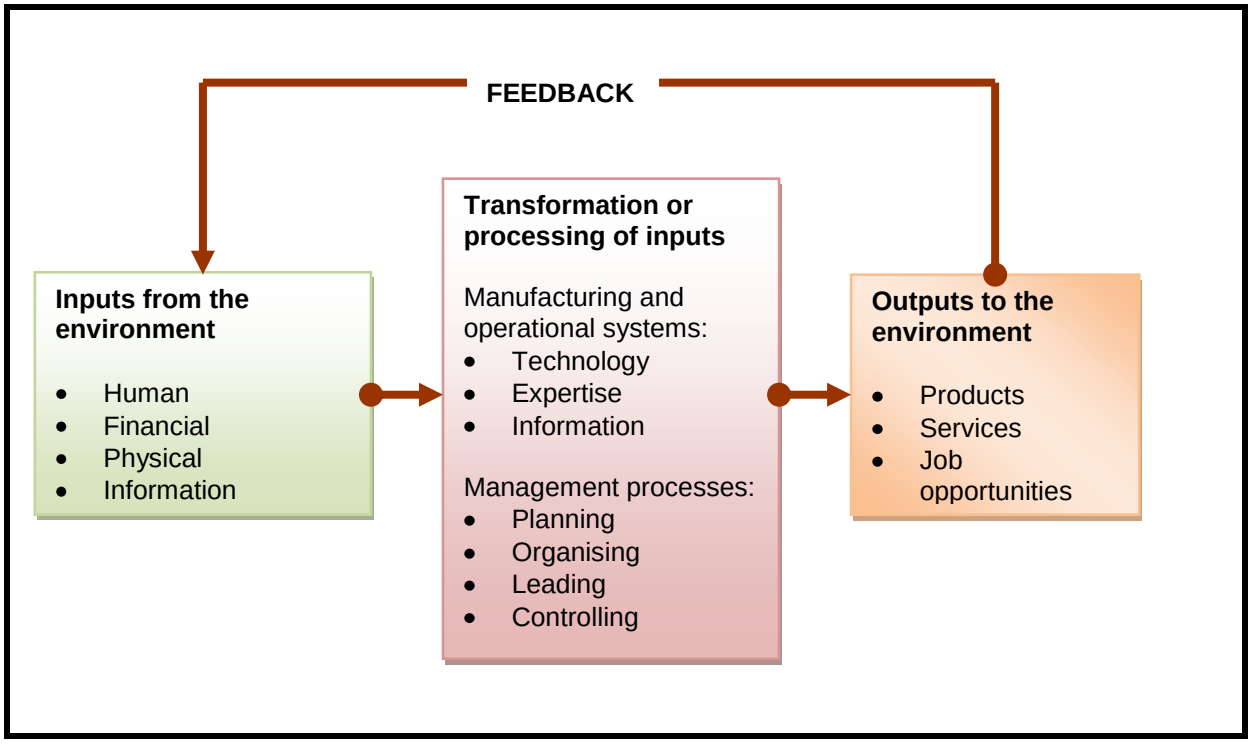

Figure 2.1: A systems perspective of an organisation [Source: Smit & Cronje (2003)]

Based on the diagram (Figure 2.1 above), an organisation obtains resources (inputs) from the environment in the form of people (human resources), financial (capital), physical resources (raw materials), information (knowledge and expertise). Information therefore forms an important input for the creation of products and or the delivery of service. According to Nachimuthu (2006) knowledge is very important in the modern uncertain economy and it is the sure source of lasting competitive advantage when it is used by an organisation collectively, efficiently, and ensuring that it is readily acquired when needed. Knowledge is information in action and a dynamic process in which data and information are continuously collected and analysed to create more value for business decision making (Lee & Yang, 2000;

Anantatmula, 2007). According to Zarraga and Garcia-Falcon (2003), pre-eminence of knowledge has been accepted as a key strategic resource that allows firms to achieve sustainable competitive advantages in today's dynamic competitive environment. Lin (2007a) describes knowledge as an indication of a firm's intellectual capital: this includes work-related experience, expertise, know-how, and best practices that can be acquired and shared. Hislop (2005) indicated that knowledge can be seen as data or information with an additional layer of intellectual analysis, where it is interpreted, meaning attached, structured and integrated to the existing belief systems and knowledge bodies. Knowledge can be defined as the combination of data and information, to which value has been increased by expert opinion, skills and experience to improve the quality of decision-making (Chaffey & Wood, 2005). Knowledge can be perceived as a continuum. First data is collected, and then transformed to information that is finally transformed into knowledge by means of adding expert opinion, skills and experience.

The diagram below (see Figure 2.2 below) indicates how the value changes as the data is transformed to information and finally to knowledge. As indicated by the definitions of knowledge, this increasing value is derived form the added expert opinions, skills and experience. According to Smith (2001), this increase in value will help organisation to develop and shape strategies to manage knowledge and develop new markets to serve customers.

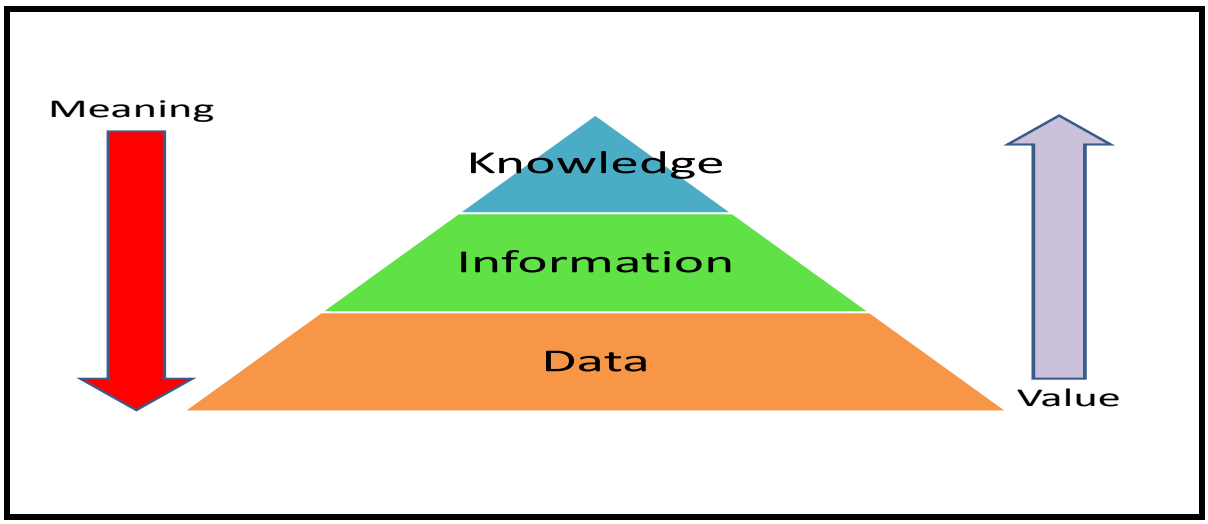

Figure 2.2: Data, information and knowledge [Source: Chaffey & Wood (2005)]

The importance of knowledge in the organisation's long-term survival and performance can be seen from Figure 2.3 below. This model indicates that knowledge contributes to the organisational performance to such an extent that it automatically becomes part of the organisation's competitive strategy.

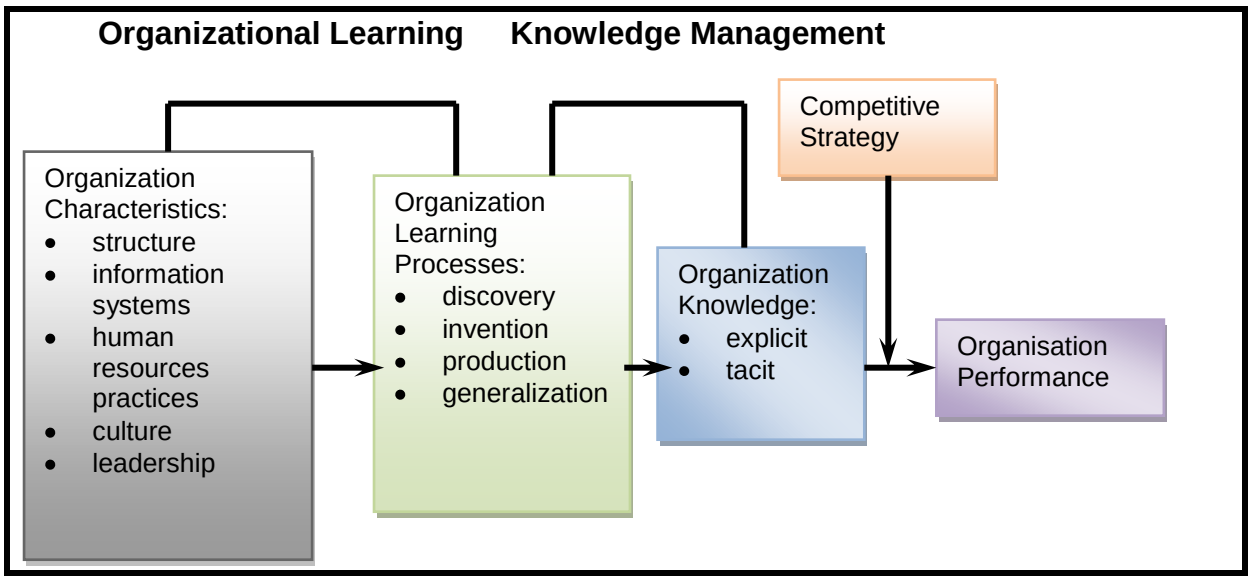

Figure 2.3: How organisation learning affects organisation performance [Source: Cummings & Worley (2008)]

Hafeez and Abdelmeguid (2003) pointed out that firms are recognising that their employees are their most valuable assets and business pioneers are striving to find ways to measure and manage the skills, information and knowledge. Civi (2000) adds that knowledge is the most important resource in a company as it is worth more than land, labour and capital and its value never diminishes and it represents 75 percent of a company's worth. Knowledge is therefore the most valuable asset of a business and an important competitive factor that evolves continuously as individuals and an organisation adapt to influences from ever-changing and dynamic internal and external environments (Rivera-Vazquez, Ortiz-Fourenier & Flores, 2009). Marakas (1999) summarises knowledge by defining it as the meaning made by mind.

When the different knowledge definitions are applied across the entire organisation (see Figure 2.4 below) they include all that the staff members know about the

organisational processes, products, customers, and all its competitors (Cummings & Worley, 2008).

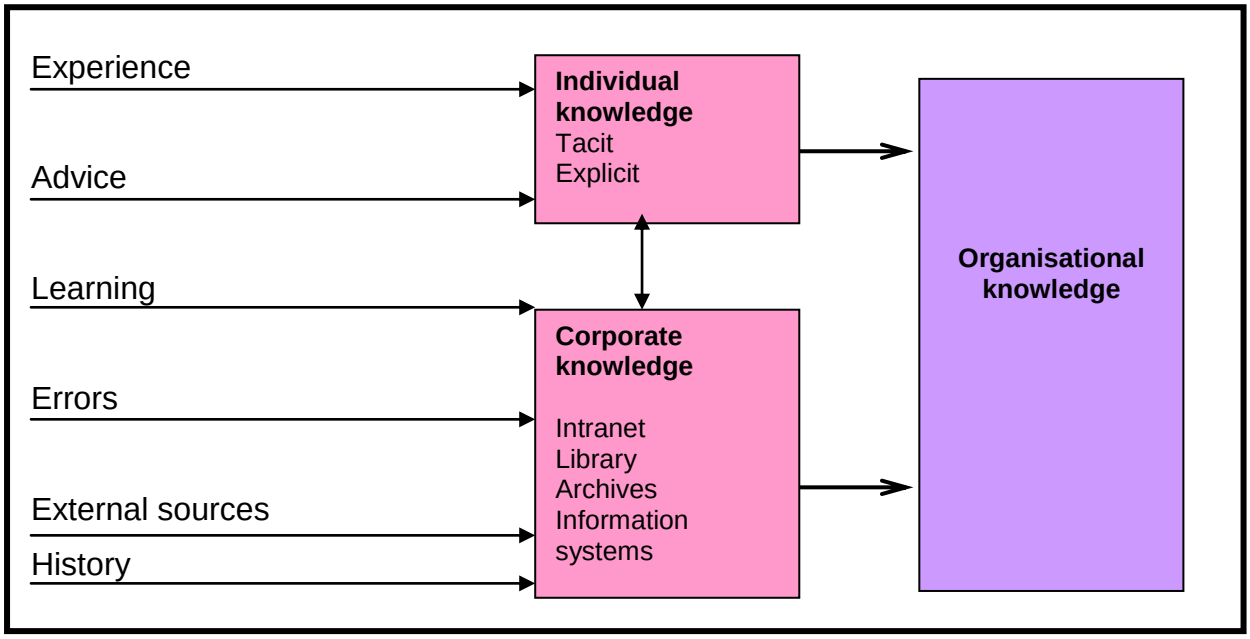

Figure 2.4: Sources of organisational knowledge [Source: Debowski (2006)]

Grant (1996) and Zack (1999) argued that knowledge is the organisation's most valuable resource. Different types of knowledge can be classified into tacit knowledge and explicit knowledge (Nonaka, 1994).

2.2.2 Tacit and explicit knowledge

Calo (2008) defines explicit knowledge as highly codifiable, observable and can be easily transferred within the organisation or between individuals. Tacit knowledge, on the other hand, is a knowledge gained through experience and it is difficult to express and formalise (Kreitner & Kinicki, 2007). Nachimuthu (2006) regarded tacit knowledge as being highly invincible and confining in the mind of a person, and as a result it is very difficult to articulate or externalise and hence cannot be easily diffused. This knowledge is based on personal insights, intuition, and personal skills and is shared, more dominantly, through direct person-to-person contacts (Edvardsson, 2008).

Nachimuthu (2006) regarded explicit knowledge as being highly visible and available in the forms of letters, memos, manuals, reports, etc. This knowledge is formal, objective and can expressed in numbers, specifications, manuals, procedures and rules and is normally stored in databases and it is one of the major reasons why organisations are investing money on databases, intranets, data warehousing, data mining and electronic libraries (Edvardsson, 2008). This information helps organisations to be effective based on the fact that the re-using of knowledge and information saves work and time, reduces communication costs, and hence allows companies to handle more projects (Hansen, Nohria & Tierney, 1999). The use of information and technology (IT) systems can enhance the capturing and transfer of this knowledge in an organisation (Rhodes et al., 2008).

Tacit knowledge and explicit knowledge have very different characteristics and management should realise these differences before the knowledge management can contribute to the competitive advantage of the organisation. Reader (2006) argues that management should take a special precaution with regard to the implications resulting from the transferability differences between tacit and explicit knowledge. Explicit knowledge is transferred easily, fast and at low cost across individuals, space and time, while the transfer of tacit knowledge between people is very slow, costly and uncertain. The easy transferability of the explicit knowledge makes it difficult for organisations to sustain competitive advantage because this knowledge, unless otherwise protected by patents for example, can be easily obtained, imitated and copied by competitors. On the other hand, tacit knowledge is not easily transferable, even within an organisation itself, and this makes it difficult for the competitors to copy and hence if properly managed will give an organisation a sustainable competitive advantage over its competitors (Goh, 2002; Cavusgil *et al.*, 2003). Organisations are investing a lot of money in such things as libraries, intranet, information systems, etc. in an attempt to ensure that the right knowledge is created, used or shared and stored. However these investments are only effective in managing explicit knowledge and not the tacit knowledge of the individuals (Civi, 2000).

2.3 KNOWLEDGE MANAGEMENT

Knowledge management can be defined as a deliberate and systematic coordination of an organisation's resources (such as people, technology, processes) and organisational structures in order to add value through continuous reuse and innovation (Dalkir, 2005). The coordination being achieved through knowledge creation, sharing and application and also achieved through incorporation of lessons learnt and best practices into the organisational memory. Chaffey and Wood (2005) view knowledge management as capabilities used by communities within the organisation to capture critical knowledge, continuously improving it and ensuring that it is made available to the relevant people to use to add value as part of their work. Debowski (2006) defines knowledge management as a process of identifying, capturing, organising and disseminating the intellectual assets that are critical to the organisation's long-term performance. Kreitner and Kinicki (2007) defined knowledge management as an implementation of systems and practices that increases the sharing of knowledge throughout an organisation and the result being the good quality and timely decisions taken. It involves the development of tools, processes, systems, structures and cultures explicitly to improve the creation, sharing, and use of knowledge critical for decision-making.

Calo (2008) sees knowledge management simply as a strategy of getting the right information to the right people at the right time and a way of ensuring that the right knowledge is applied in decision making to improve organisational performance. Knowledge management practices involve management of all knowledge required to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets, and to develop new opportunities (Jarrar, 2002). Karkoulian *et al*. (2008) emphasise that knowledge management empowers people to resolve problems efficiently, to make right decisions, to respond to customer queries, and to create new products and services to satisfy the needs of customers.

These knowledge management definitions indicate that knowledge management is a continuous process that requires the identification and creation of knowledge, sharing and distribution, application, refining and continuously improving it to ensure improved quality of decisions taken, work performed and hence leading to a

sustainable competitive advantage. Knowledge management is all about the development, sharing and application of knowledge within the firm to gain and sustain a competitive advantage.

Knowledge management consists of the following five core processes (Hamel & Prahalad, 1994; Chaffey and Wood, 2005):

1. *Identification of knowledge*: in this process people think of what they want to achieve and the knowledge required to make it happen. As a result, the knowledge gap is identified.
2. *Create knowledge* – the knowledge gap is closed by training, learning by doing, and problem solving and during this process a new knowledge is created.
3. *Store knowledge* – the new knowledge is stored in documents and databases and forms part of the knowledge base for the organisation.
4. *Share knowledge* – the knowledge is then distributed to the right people at the right time to improve the effectiveness and quality of decision making. The knowledge may be shared via documents and databases or via person-to-person.
5. *Use knowledge* – people apply knowledge in the business processes to improve performance.

Leung *et al.* (2004) pointed out that a knowledge-management system, to a large extent, should consist of three main principal elements: knowledge source, knowledge transfer, and knowledge receiver. Reid (2003) argues that knowledge sharing helps to creates opportunities that help organisations to maximise their abilities to develop competitive advantages through the improvement in the meeting of customer needs, generating creative solutions and improved efficiencies in their business processes and decision-making.

Lin (2007a) defines knowledge sharing as a social interaction culture that involves the sharing of employee knowledge, experiences and skills and further warns that organisations can only promote knowledge sharing culture by, in addition to incorporating knowledge in its business strategy, changing employees' attitude, and behaviour to promote willingness and consistent knowledge sharing. Knowledge sharing involves the distribution of knowledge to the right people at the right time.

This is achieved by using a flow approach – defined as a person-to-person sharing of knowledge.

According to Zarraga and Garcia-Falcon (2003), knowledge, is by definition, buried in the minds of the individuals and that knowledge management models that can help companies to take full advantage of knowledge resource must be centred on three specific activities. These activities are:

- Firstly, knowledge must be created and the individuals (indicated in the knowledge definition) are responsible for the creation of this knowledge.
- Secondly, once the knowledge has been created it must be transferred from these individuals to others.
- Thirdly, these separate pieces of knowledge will have to be integrated and become one mass of knowledge for an organisation.

The future of an organisation will be at risk if an organisation fails to recognise, promote, and encourage the flow or transfer and application of knowledge (Smith, 2001). The efforts to share intellectual knowledge are more effective when an organisation recognises and rewards people for their know-how of the organisation's knowledge processes and for using their creative minds and intuition at work (Wah, 1999). Based on the context of knowledge sharing, different aspects of organisational climate such as reward systems are critical drivers of knowledge sharing, one of the core processes of knowledge management (Bartol & Srivastava, 2002). The previous studies have indicated that knowledge sharing is also related to enjoyment in helping others (Wasko & Faraj, 2000; Lin, 2007a), knowledge self-efficacy (Wasko & Faraj, 2005), and formal and informal mentoring (Bryant, 2005).

2.4 ORGANISATIONAL REWARD SYSTEMS

Rewards can be divided into extrinsic and intrinsic rewards (Smit & Cronje, 2003). A general model of an effective organisational reward system is shown in Figure 2.5.

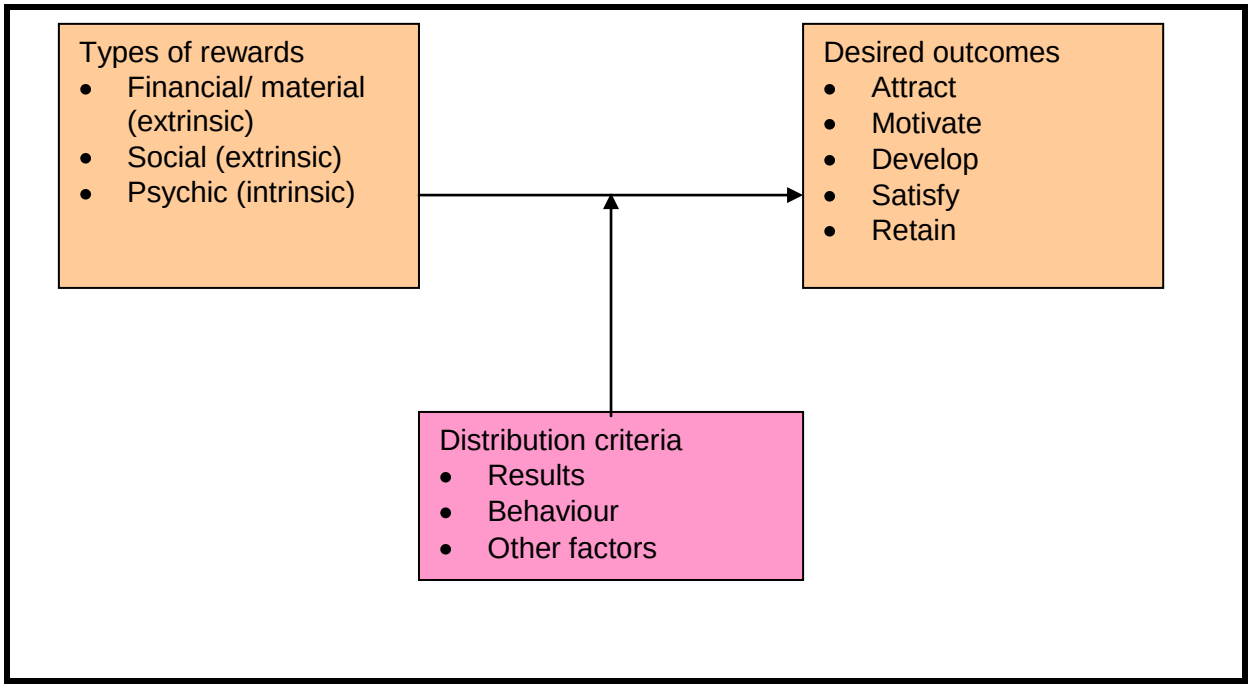

Figure 2.5: A general model of organisational reward systems [Source: Kreitner & Kinicki (2007)]

Extrinsic rewards come from the environment and examples are financial, material, fringe benefits and social rewards (Herzberg, 1987b). An employee is said to be extrinsically motivated when motivated by extrinsic rewards. Intrinsic rewards are regarded as psychological rewards because they are self-granted and involve a positive psychological state within an individual (Herzberg, 1987a; Conger & Kanungo, 1988).

An intrinsically motivated employee derives pleasure from the task itself or self-determination. As shown in Figure 2.5, an effective reward system should help an organisation to attract talented people, motivate them and ensure that they are satisfied and it should also encourage personal development and growth (sharing

and receiving of knowledge) and help to keep these people from leaving the company (Mahaney & Lederer, 2006; Bhatnagar, 2007).

However, extrinsic rewards often fail to motivate employees because of issues such as too much emphasis on monetary rewards, lack of an "appreciation effect", counterproductive behaviour and too many one-size-fits-all rewards (Kerr, 1995; Spitzer, 1996). Studies have revealed that if employees believe that they will receive rewards from their knowledge sharing, then they will develop a more positive attitude toward knowledge sharing (Bock & Kim, 2002; Kankanhalli, Tan & Wei, 2005), and also the rewards should be greater than cost for knowledge sharing to take place (Constant, Kiesler & Sproull, 1994). According to Torkzadeh & Van Dyke (2002) personal factors such as goal setting and informal processing, along with situational factors rewards and feedback, are related to the individual's motivation and self-efficacy.

2.5 ENJOYMENT AND ORIENTATION TO HELP OTHERS

Enjoyment in helping others is developed from the concept of altruism. Altruism can be defined as "behaviour such as helping or sharing that promotes the welfare of others without conscious regard for one's own self interest (Hoffman, 1979). Altruism involves discretionary behaviours that help specific others with relevant organisational tasks or problems (Organ, 1988). It has been posited by the previous studies that employees' altruism and social interaction settings are critical in facilitating knowledge sharing (Davenport & Prusak, 1998).

According to Smith (2001) organisations reward their employees for sharing knowledge with others based on how much direct help they give to colleagues. Other companies encourage knowledge sharing by making use of overlapping teams to drive the sharing of knowledge across different disciplines, ensuring continuity of control, and joint learning. According to Marslow's hierarchy of needs model, at a certain level of needs (esteem needs level), people have expectations for sharing knowledge and unless management clearly states these expectations, people are more likely to share only explicit knowledge and not tacit knowledge (Smit & Cronje, 2003). These needs are in the form of rewards for high achievement with proper

recognition and appreciation. The study by Lin (2007a) has indicated a strong positive relationship between enjoyment in helping others and the individuals' willingness to share knowledge. Studies have shown that employees are intrinsically motivated to share knowledge with others because of the pleasure and enjoyment they derive from engaging with others in intellectual pursuits and solving of challenging problems (Wasko & Faraj, 2000; Wasko & Faraj, 2005).

2.6 KNOWLEDGE SELF-EFFICACY

Self-efficacy theory is an ideal theory to understand why individuals choose to share or not to share knowledge in some contexts and not in others (Endres, Endres, Chowdhury & Intakhab, 2007). Self-efficacy is defined as the judgement of individuals with regard to their capabilities to organise and carry out courses of action required to achieve specific levels of performance, and as a result it is an important factor that will influence the decision to share or transfer knowledge (Lin, 2007b). The higher the self-efficacy, the more one will be likely to perform related behaviour and to successfully accomplish a specific task, and vice versa. The level of self-efficacy can pave the way to success or failure for an individual and this can be indicated by the model shown in Figure 2.6. Based on this model, there are four sources of beliefs (prior experience, behaviour model, persuasion from others, and assessment of physical or emotional state) that determine whether the self-efficacy of an individual is likely to be low or high. Furthermore, as can be seen from this model (figure 2.6), high self-efficacy will lead to success, while the low self-efficacy will lead to failure.

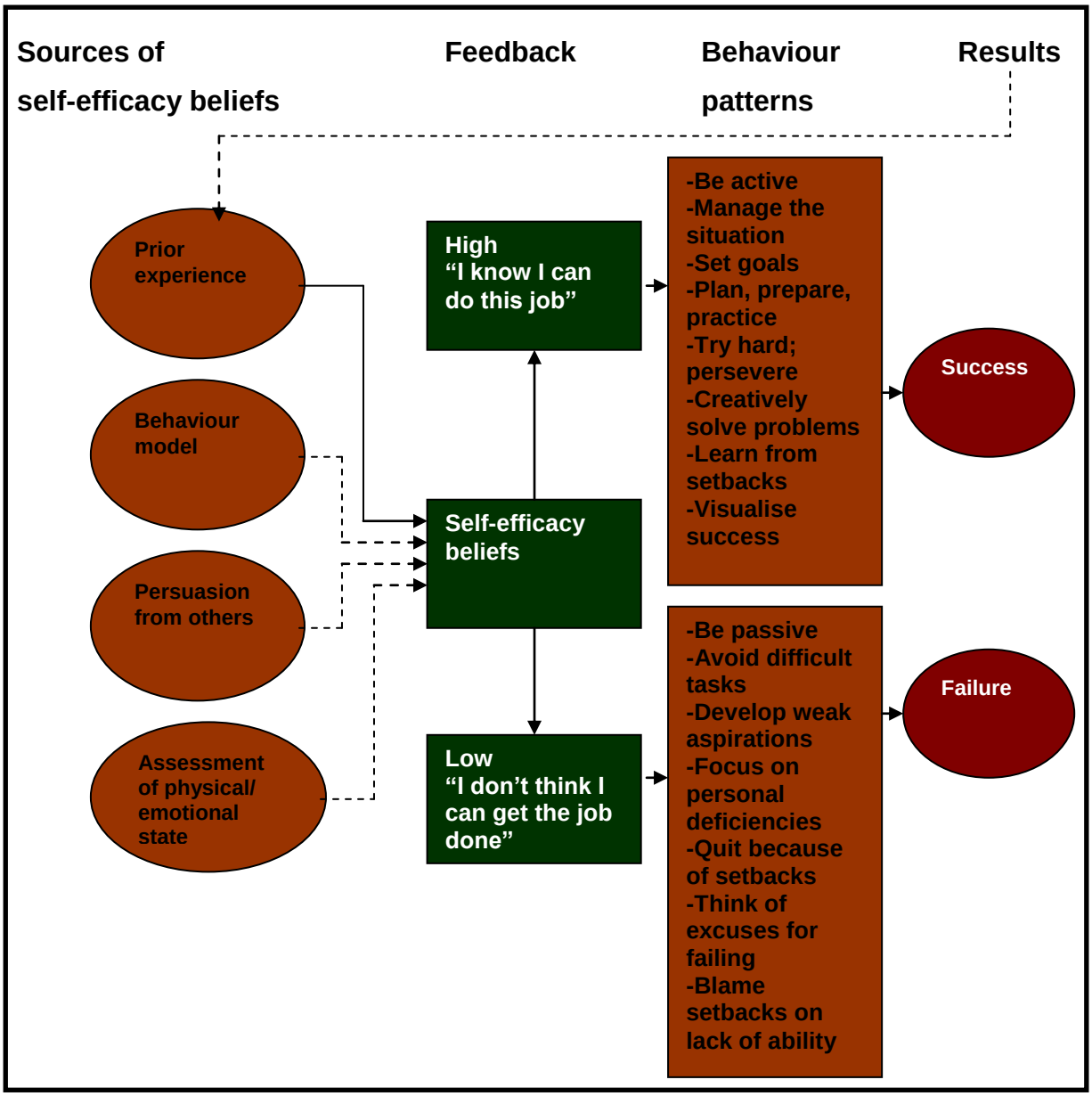

Figure 2.6: A model of how self-efficacy beliefs can pave the way to success or failure [Source: Kreitner & Kinicki (2007)]

Individuals with high knowledge self-efficacy will be more successful in sharing knowledge with others, and vice versa. This model can be used by management, based on the behaviour pattern of their employees, as a guideline to identify areas that contribute to their employees' self-efficacy and develop action plans to ensure that the self-efficacy of every employee is maintained at the high level. According to Bandura (1986), self-efficacy can be seen as a form of self-assessment that will influence the decision regarding what behaviours to undertake, amount of efforts and persistency when faced with challenges and the mastery of the behaviour. People

with high general self-efficacy have strong beliefs in their ability to control their own behaviour and also influence events affecting their lives (Bandura, 1997). Research has shown that there a positive relationship between knowledge self-efficacy and knowledge sharing (Lin 2007a). There is positive relationship between mentoring and self-efficacy (Allen, Eby, Poteet, Lentz & Lima, 2004), and mentees with higher levels of self-efficacy are likely to exert effort to overcome difficulties or to take initiatives to work out problems in mentoring activities (Gist & Mitchell, 1992; Jerusalem & Schwarzer, 1992), while those with low levels of self-efficacy tend to ready to just accept what is offered to them during mentoring (DiRenzo, Linnehan, Shao & Rosenberg, 2010).

2.7 MENTORING

2.7.1 Defining mentoring

Bryant (2005) describes mentoring as an increasingly common and effective way to facilitate knowledge creation and sharing and that mentoring, socialising and storytelling are seen as the most appropriate and proper methods for sharing complex tacit knowledge. Mentoring programmes, in business organisations, are normally designed and introduced to support specific groups such as new recruits, graduate trainees, ethnic groups, disabled or disadvantaged individuals, and people who are motivated to manage their own learning and development. Parsloe and Wray (2000) define mentoring as a process that supports learning and development, and hence improves the performance of either an individual, team or organisation as whole. Clutterbuck (2006) defines mentoring as a partnership between two people built upon trust, a process in which a mentee receives ongoing support and development opportunities and where issues and obstacles encountered by the mentee are addressed. In the process both the mentee and mentor share a common purpose to develop a solid two-way learning relationship. However, any definition of mentoring used will have to be in relation to the type of relationship and the objectives of the relationships (Clutterbuck, 2006). Literature reviews distinguished between *formal and informal mentoring*. According to Karkoulian et al. (2008) formal mentoring occurs when the organisation provides and sets formal support structures to ensure that participants clearly understand the purpose and have the right support

they need for a successful relationship, while informal mentoring arises when two people establish a developmental relationship without the formal structures, help and guidance from the organisation.

2.7.2 Mentoring process

According to Brockbank and McGill (2006), the mentoring process has four stages and these can be represented graphically, as shown in Figure 2.7 below.

- Stage 1: Confirmation of Personal Development Plan (PDP).
- Stage 2: Encourage self-management of learning.
- Stage 3: Provide support during the PDP.
- Stage 4: Assist in the evaluation of success.

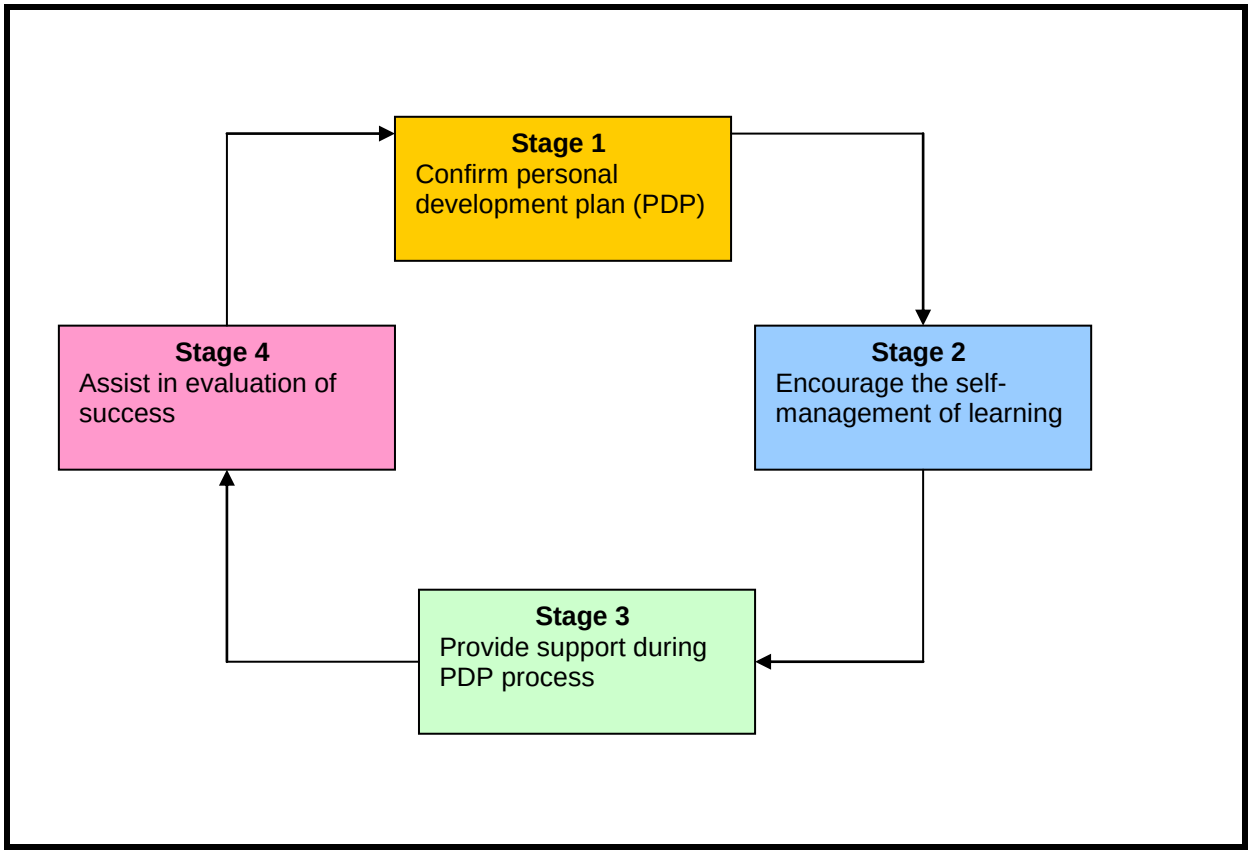

Figure 2.7: The graphical illustration of the mentoring process [Source: Brockbank & McGill (2006)]

2.7.3 Different approaches to mentoring

Brockbank and McGill (2006) mention the following mentoring approaches:

- *Functionalist mentoring* – This is a traditional mentoring approach that was associated with the recycling of power within organisations.
- *Engagement mentoring* – In this approach the mentor and the mentee are engaged, but the problem is that it is still individualistic in nature and it ignores the social and political context with their massive power and effects.
- *Revolutionary mentoring* – the approach adopts an objective view of the reality, but ignores the individuals' subjective views of the world.
- *Evolutionary mentoring* –The approach uses *reflective dialogue* to ensure that the individuals identify the embedded power structures, and objective and subjective realities. The main strength of this approach is the ownership of the goals by the mentee. This is a typical formal mentoring approach followed by many profit-making and non-profit making organisations.

The reflective dialogue is part of the so-called reflective learning. It is an exchange between mentor and mentee and it contributes heavily to the learning and development of the mentee. It is clear that mentoring is entirely aimed at the development and growth of people and this is in line with the goals of knowledge transfer or sharing theory. According to Brockbank and McGill (2006), the reflective dialogue (referred to in evolutionary mentoring) adopts the following humanistic value:

- A belief that people are driven to grow and develop rather than stagnate.
- A person is a whole person, not just the part that is doing work.
- Goodwill is how most people operate.
- People have spiritual dimensions in their lives.

2.7.4 Functions and benefits of mentoring

According to Kram (1985), mentoring fulfils two general functions – career and psychological. *Career functions* are sponsorship, exposure-and-visibility, coaching, protection, and challenging assignments. *Psychological functions* are role-modelling,

acceptance-and-confirmation, counselling, and friendship. *Career functions* improve "learning the ropes" and prepare individual for advancement in an organisation, while *psychological functions* are the aspects of the relationship that give an enhanced sense of competency, self-worth both inside and outside the organisation and effectiveness in a professional role. In the sponsorship function, the mentor uses his/her network to support the mentees career advancement, in the coaching the mentor teaches the "ropes" to the mentee, and in the protection function the mentee is provided with support, by the mentor, in different situations (Burgess & Dyer, 2009).

Literature review has indicated the benefits of mentoring to both the mentee and mentor. *Mentee:* receives high job performance ratings (Scandura & Williams, 2004), professional growth, development of skills, talents and confidence in executive of tasks through the structure that provides support, constructive support and role modelling (Jakubik, Eliades, Gavriloff & Weese, 2011), higher job satisfaction and self-esteem, greater organisational commitment and perception of promotion opportunities and lower work stress (Underhill, 2005). *Mentors:* mentoring others provides the mentor with technical support, create a base of power within the organisation, and lead to recognition and rewards for developing talent and creating a renewed sense of purpose in one's work role (Hunt & Michael, 1983), job satisfaction and organisational commitment (Eby, Durley, Evans and Ragins, 2006), and also mentoring others helps the mentor's communication and interpersonal skills (Gentry, Weber & Sadri, 2008).

2.8 MENTORING AND KNOWLEDGE MANAGEMENT

According to Holliday (2001), one of the outcomes of effective mentoring is the appreciation of networking. Networking in this regard implies that people are interacting and sharing ideas and knowledge with others and the ultimate result is the growth of all parties. In an organisation where a knowledge sharing culture is promoted, the knowledge management strategy will definitely create business value. People in the past have used storytelling as a way of passing-on accumulated knowledge and wisdom to the future generations. There are four processes in which

knowledge is created and transferred, and these processes are as follows (Nonaka & Takeuchi, 1995):

- *Tacit to tacit through a process of socialisation* – learning by observation, imitation and practise and being social changed into doing things in a certain way, like learning from mentors and peers.
- *Tacit to explicit through a process of externalisation* – creating new products from manuals containing recorded discussions, descriptions and innovations.
- *Explicit to tacit through a process of internalisation* – explicit knowledge is interpreted by using a person's frame of reference to ensure that knowledge is understood and then internalised and localised or accepted by others.
- *Explicit to explicit through a process of combination* – different pieces of explicit knowledge are combined into a new whole.

According to Hansen, Nohria, and Tierney (1999), people still prefer to use face-to-face methods and "hands-on" methods to transfer know-how or tacit knowledge to others. Mentoring programs are growing in number as an effective mechanism to transfer knowledge within organisations, because they pair novice employees with outstanding experienced employees who can explain policies and practices, share methods and materials, help solve problems (ERIC Digest, 1995). Mentoring program benefit an organisation because it supports professional growth and development and it empowers the mentees (Luna & Cullen, 1995; Bush & Middle Wood, 1997); mentors achieve these by imparting their tacit knowledge, as well as demonstrating their skills and exemplary behaviours to the mentees (Hassan & Handzic, 2003).

2.9 CHAPTER SUMMARY

In this chapter, the literature review was discussed by focusing on knowledge, knowledge management, organisational rewards, enjoyment in helping others, knowledge self-efficacy, mentoring, and concluding with mentoring and knowledge management to facilitate greater understanding of these concepts. The study focused on creating the understanding for the measured variables by covering topics such as definitions, models, functions, benefits and also the relationships between

mentoring (formal and informal) and knowledge sharing, organisational rewards and knowledge sharing, enjoyment in others and knowledge sharing and finally between knowledge self-efficacy and knowledge sharing. The next chapter will discuss the empirical study by focusing on the research method, study population, measuring instruments used, statistical analysis and research hypotheses.

CHAPTER 3: EMPIRICAL STUDY

INTRODUCTION

In the previous chapter, the literature review was discussed by focusing on knowledge, knowledge management, organisational rewards, enjoyment in helping others, knowledge self-efficacy, mentoring, and concluded with the relationship between mentoring and knowledge management. In this chapter, the empirical study is discussed by focusing on the research method, study population, measuring instruments used, statistical analyzes and research hypotheses.

3.1 RESEARCH METHOD

3.1.1 Research design

The research design used is a quantitative cross-sectional approach where questionnaires will be used. This type of design is suited to the study because of the correlation relationships that are studied in the research. The research aimed to *determine the relationships* between *formal mentoring, informal mentoring, knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy* and also to determine whether people who have and have not experienced formal and informal mentoring experiences these variables differently. Advantages of a quantitative study include (Matveev, 2002; Sukamolson, 1997):

- The study can be administered in a short time
- Large number of participants
- There is a relatively large amount of literature available
- Standardised measuring instruments

3.1.2 Ethical aspects

Permission was requested and granted (a signed memo) by the company Operations General Manager and Human Resource (HR) Senior Manager. All the

questionnaires were handed, manually with the help of HR personnel, to the employees with the new envelope to ensure and guarantee complete confidentiality of their responses. The employees were requested to complete questionnaires, seal the envelope and hand back the sealed envelopes. Employees' names on the questionnaires or envelopes were not required to ensure complete anonymous participation. Voluntary participation was emphasised throughout the research project.

3.2 STUDY SAMPLE

The research was conducted at one of the major South African steel manufacturing companies. The research was conducted by means of questionnaires. The study sample consisted of 300 employees of the steel manufacturing company in South Africa. The target group consisted of all full time employees from different departments and divisions of the company, and convenient sampling technique was used. This is a non-probability sample technique and it was used because participation was based on availability and willingness of participants. The total number of completed questionnaires returned was 134. The characteristics of the participants are presented in table 1 below.

Table 1:

Characteristics of participants

Item	Category	Frequency	Percentage
Age	20 – 29	36.00	26.87
	30 – 39	43.00	32.09
	40 – 49	35.00	26.12
	50 – 59	17.00	12.69
	60+	3.00	2.240
Gender	Male	104.0	77.61
	Female	30.00	22.39
Race	Asian	8.00	5.97
	Black	46.00	34.33
	Coloured	3.00	2.24
	White	77.00	57.46
Education	Certificate	3.00	2.24
	Degree	48.00	35.82
	Diploma	57.00	42.54
	Post graduate	26.00	19.40
Formal mentoring experienced	Yes	108.0	80.60
	No	26.00	19.40
Informal mentoring experienced	Yes	116.0	86.57
	No	18.00	13.43
Years of employment	0 – 5	65.00	50.00
	6 – 10	14.00	10.00
	11 – 15	19.00	14.00
	16 - 20	11.00	8.00
	21 – 25	15.00	11.00
	26 – 30	3.00	2.00
	31+	7.00	5.00

The sample (N=134) consisted of mainly men (77.61 %). The age groups, between 20 to 29, 30 – 39 and 40 - 49 years, are almost equally divided. The sample mainly consisted of white employees (57.46 %) but the black proportion also represented

(34.33 %). The majority of the participants have diploma (42.54 %) but proportion of degree also represented (35.82 %) of the sample. The majority of the participants have experienced formal mentoring (80.60 %) and informal mentoring (86.57 %). The majority of participants have between 0 to 5 years of service (50 %) with the company.

3.3 MEASURING BATTERY

3.3.1 Measuring instruments

Organisational rewards, enjoyment in helping others and knowledge self-efficacy were measured using the seven-point Likert-type scale that was adapted from Lin (2007b) and modified to a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) to fit with the other measured items of the research.

- ***Organisational rewards*** were measured using the four items adapted from Lin (2007b) and that were derived from Hargadon, Davenport and Prusak (1998). These were defined as the extent to which employees believe that they will receive extrinsic incentives for sharing knowledge with other colleagues. Lin (2007b) obtained a composite reliability of all constructs of 0.75. A sample item from the questionnaire is: “Sharing my knowledge with colleagues should be rewarded with a higher bonus”.

- ***Enjoyment in helping others*** was measured using the four-item scale that was adapted from Lin (2007b) and derived from Wasko and Faraj (2000). This scale measures the employee perceptions of pleasure obtained through sharing knowledge. Lin (2007b) obtained reliability of 0.84 for these items. A sample item from the questionnaire is: “I enjoy helping colleagues by sharing my knowledge”.

- ***Knowledge self-efficacy*** was measured using the four-item scale that was adapted from Lin (2007b) and developed by Spreitzer (1995). This scale measures the employee judgements of their capability to share knowledge that is valuable to the organisation. Lin (2007b) obtained reliability of 0.86 for these

items. A sample item from the questionnaire is: “I have the expertise required to provide valuable knowledge for my company”.

- ***Mentoring (formal and informal)*** were measured with the four-item scale (each) developed by the Organisation for Economic Cooperation and Development (OECD) (1999). The rating used is a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). The scale was used to measure the perception of formal and informal mentoring and their role in knowledge sharing. Karkoulian *et al.* (2008) found an alpha measure of for reliability of 0.95. Sample items from the questionnaire are: “Formal mentoring results in greater motivation, more commitment and better performance on the part of the mentees” and “Learning acquired from informal mentoring is deeper, richer and stronger”.

- ***Knowledge sharing*** was measured with the four-item scale (each) developed by the Organisation for Economic Cooperation and Development (OECD) (1999). The rating used is a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). The scale was used to measure the extent to which knowledge is shared among the employees. Karkoulian *et al.* (2008) found an alpha measure of for reliability of 0.89. A sample item from the questionnaire is: “My organisation develops a culture that promotes sharing of knowledge”.

3.3.2 Administration of the measuring instruments and data capturing

The employees were requested to complete questionnaires privately at home or office, seal the envelope and hand back the sealed envelopes. Employees’ names on the questionnaires or envelopes were not required to ensure complete anonymous participation. Time allowed for returning of the completed questionnaire was two weeks. Emails were used to remind the participants of the due date prior to submission. Human resource personnel had a box where participants dropped off completed questionnaires for submission. All the completed questionnaires were given to the researcher. The data was then captured on a Microsoft Excel sheet. The data was codified, using a numbering system, to enable statistical analyses to be conducted. The data was then statistically analyzed.

3.4 STATISTICAL ANALYSIS

The complete statistical analysis was conducted with the help of the two suitable computer software programs (Statistica, 2009; SPSS; 2009). Cronbach alpha coefficients were determined to measure the reliability of the measuring instruments. Spearman's rank order correlation coefficient was calculated to give an indication of the relationships between measured variables. Spearman's, r, is a nonparametric measure of association that doesn't depend on assumptions such as normality. Interpretations are based on different r-values. The r-value of ±0.1 indicates small effect, ±0.3 indicates medium effect and ±0.5 indicates large effect (Field, 2009:170). In this study the sample was not a random sample from the population, but an available sample. Therefore statistical inference and p-values are not relevant and effect sizes indicating significant differences were rather used. P-values are reported for completeness, but focus of interpretation will fall on effect sizes. Also a t-Test analysis was performed to determine the practically and statistical significance difference between the group that have experienced formal mentoring and the one that has never experienced formal mentoring.

3.5 RESEARCH HYPOTHESES

The following research hypotheses are formulated for the purpose of this study:

- *H1: There is a positive relationship between formal and informal mentoring and knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy;*
- *H2: Employees with formal mentoring experience would experience higher levels of knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy compared to those without formal mentoring experience; and*
- *H3: Employees with informal mentoring experience would experience higher levels of knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy compared to those without in formal mentoring experience*

3.6 CHAPTER SUMMARY

In this chapter, the empirical study was discussed by focusing on the research method, study population, measuring instruments used, statistical analysis and research hypotheses. The next chapter will focus on the empirical results by looking at descriptive statistics, relationships between measured variables (formal mentoring, informal mentoring, knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy), *t*-test results and will conclude with the discussion of the results.

CHAPTER 4: EMPIRICAL RESULTS AND DISCUSSIONS

In the previous chapter, the empirical study was discussed by focusing on the research method, study population, measuring instruments used, statistical analysis and research hypotheses. This chapter will discuss the descriptive statistics, relationships between measured variables and *t*-test results. The aim of the research was to determine the relationships between formal mentoring, informal mentoring, knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy and to determine whether people who have and have not experienced formal and informal mentoring experience these variables differently.

4.1 DESCRIPTIVE STATISTICS

The results of the descriptive statistics for the six measured variables are shown in Table 2 below.

Table 2

Descriptive statistics

Category	***M***	***SD***	**Mean inter-item correlation**	**Item total correlation**	**α**
Formal mentoring	3.74	0.91	0.55	0.55	0.71
Informal mentoring	3.69	0.62	0.36	0.36 - 0.49	0.63
Knowledge sharing	3.13	0.80	0.42	0.42 - 0.57	0.68
Organisational rewards	2.80	0.80	0.50	0.27 - 0.78	0.79
Enjoyment in helping others	4.27	0.60	0.73	0.75 - 084	0.91
Knowledge self-efficacy	3.78	0.72	0.49	0.44 - 0.62	0.72

Based on the Nunnally (1978) test, the reliabilities of formal mentoring, organisational rewards, enjoyment in helping others and knowledge self-efficacy were acceptable. All *Cronbach alpha* values for all variables are above the required level of 0.7, except for informal mentoring and knowledge sharing with values of 0.63 and 0.68, respectively. However, although the Cronbach alpha values for informal mentoring and knowledge sharing are close to but below 0.7, according to Kline as quoted by Field (2009), when we are working with psychological constructs, alpha values below 0.7 can, realistically, be expected because of the diversity of the constructs being measured.

4.2 RELATIONS BETWEEN THE MEASURED VARIABLES

One of the aims of the study was to determine the relationships between various variables measured in the study. The results of the correlation analyses conducted are presented in table 3 below.

Table 3

Spearman's correlations matrix for measured variables

	1	2	3	4	5
1. Formal mentoring	-				
2. Informal mentoring	0.31**	-			
3. Knowledge sharing	0.31**	0.06	-		
4. Organisational rewards	-0.11*	0.11*	-0.01	-	
5. Enjoyment in helping others	0.22*	0.08	0.10*	-0.04	-
6. Knowledge self-efficacy	0.07	0.04	0.18*	0.02	0.27*

* denotes small effect size, ** denotes medium effect size

Formal mentoring is positively statistically significantly related to informal mentoring and knowledge sharing (with a medium practical significance). Formal mentoring is also positively statistically significantly related to enjoyment in helping others (with a small practical significance). However, formal mentoring is also negatively statistically significantly related to organisational rewards (with a small practical significance). Informal mentoring is positively statistically significantly related to

organisational rewards (with a small practical significance). Knowledge sharing is positively statistically significantly related to enjoyment in helping others and knowledge self-efficacy (with a small practical significance). Enjoyment in helping others is positively statistically significantly related to knowledge self-efficacy (with a small practical significance).

4.3 t-TEST RESULTS

The respondents were divided into four groups, i.e. those who experienced formal and informal mentoring and those who did not, to determine whether they experience the variables measured differently. This was achieved by performing a statistical *t*-test analysis and results for formal mentoring are presented in Table 4 below.

Table 4

The T-test analyses results for formal mentoring construct

	Mean		***SD***			
	IM: Yes	IM: No	IM: Yes	IM: No	p-value	Cohen's d
Formal mentoring	3.94[a]	2.90[b]	0.72	1.12	0.00	0.93
Informal Mentoring	3.74	3.49	0.60	0.68	0.09	0.37
Knowledge sharing	3.25[c]	2.67[d]	0.77	0.79	0.00	0.74
Organisational rewards	2.75	3.03	0.79	0.84	0.13	-0.33
Enjoyment in helping others	4.29	4.21	0.53	0.86	0.67	0.09
Knowledge self-efficacy	3.76	3.89	0.74	0.65	0.39	-0.17

Note: Superscripts a and c denote big; b and d denote small / FM = Formal mentoring

The sample was not a random sample from the population, but an available sample. Therefore statistical inference and p-values are not relevant and effect sizes indicating significant differences should rather be used. P-values are reported for completeness, but focus of interpretation will fall on effect sizes.

Statistical significance differences were obtained for formal mentoring (with large effect) and knowledge sharing (with medium to large effect). The results in Table 4 indicate that those with formal mentoring experiences are in higher agreement with formal mentoring than those who have not. They also indicate that those with formal mentoring experienced higher levels of knowledge sharing than those without formal mentoring experience. Analysis of table 5 below indicate that statistical significance differences were obtained for formal mentoring (with large effect), informal mentoring (with medium effect) and knowledge sharing (with small to medium effect). The results of table 5 indicate that those with informal mentoring experiences are in agreement than those who have not experienced informal mentoring. They also indicate that those with informal mentoring are in higher agreement with formal mentoring than those who have not experienced informal mentoring.

Table 5

The T-test analyses results for informal mentoring construct

	Mean		***SD***			
	IM: Yes	IM: No	IM: Yes	IM: No	p-value	Cohen's d
Formal mentoring	3.88[a]	2.83[b]	0.81	1.03	0.00	1.02
Informal Mentoring	3.75[c]	3.32[d]	0.57	0.80	0.04	0.54
Knowledge sharing	3.21[e]	2.67[f]	0.69	1.25	0.09	0.43
Organisational rewards	2.82	2.71	0.78	0.98	0.65	0.11
Enjoyment in helping others	4.26	4.36	0.56	0.87	0.63	-0.12
Knowledge self-efficacy	3.76	3.89	0.73	0.67	0.48	-0.17

Note: Superscripts a and c denote big; b and d denote small / IM = Informal mentoring

The results further indicate that those with informal mentoring have experienced higher knowledge sharing than those who have not experienced informal mentoring. Figure 4.1 below provide a summary of the t-Tests conducted for the various constructs measured

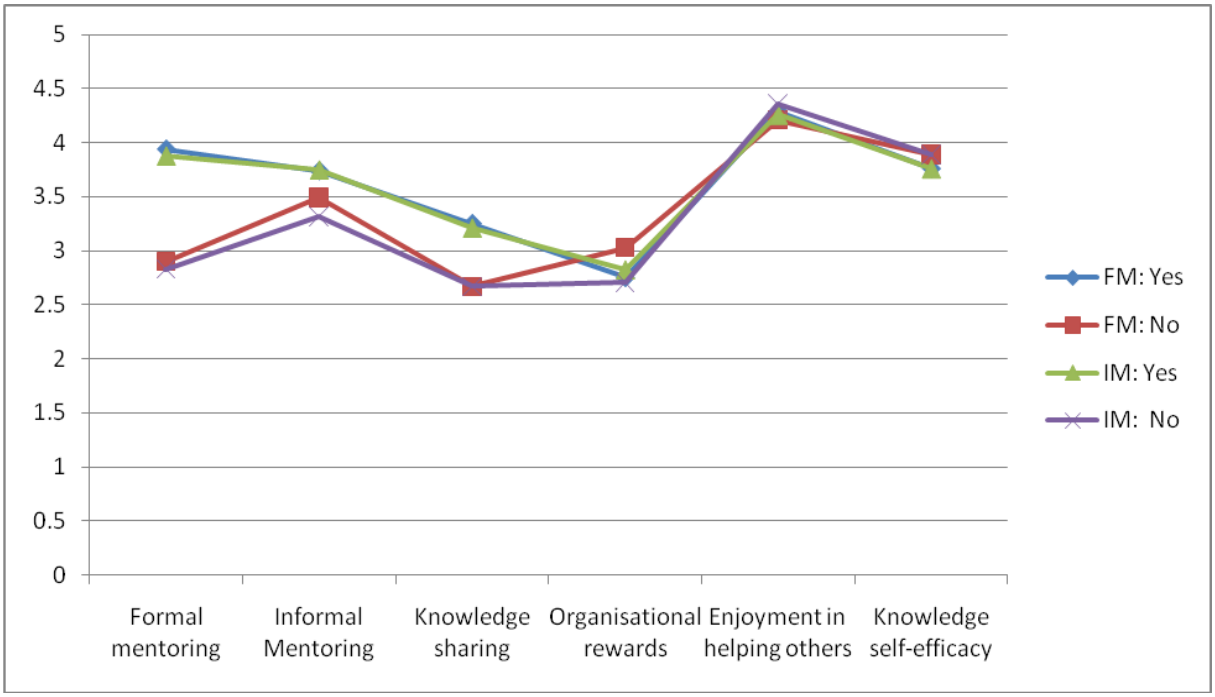

Figure 4.1: A summary of the t-tests conducted for the various constructs measured

4.4 DISCUSSIONS

This study was aimed at determining the relationships between six variables (formal mentoring, informal mentoring, knowledge sharing, organisational rewards, enjoyment in helping others and knowledge self-efficacy) and also to determine whether people that have and have not experienced formal and informal mentoring experiences these variables differently. Findings of the study indicated that formal mentoring is positively significantly related to informal mentoring and knowledge sharing. The more the people are enrolled in mentoring the more willingly they will share their knowledge and voluntarily be engaged in informal mentoring with others. The results of the study also confirm the previous study by Karkoulian et al. (2008), with regard to the relationship between formal mentoring and knowledge sharing and the strength thereof. The findings indicated that formal mentoring is positively significantly related to enjoyment in helping others. Therefore we can conclude people in formal mentoring program enjoy helping others. The study results also indicate a negative significant relationship between formal mentoring and organisational rewards. The results also showed that informal mentoring is positively significantly related to organisational rewards. Knowledge sharing was found to be positively significantly related to enjoyment in helping others and knowledge self-

efficacy and these results concur with Lin (2007a) who showed that enjoyment in helping others and knowledge self-efficacy are both positively related to knowledge sharing, with a strong relationship. Finally the results have indicated a positive significant relationship between knowledge self-efficacy and enjoyment in helping others. The people with high knowledge self-efficacy are more oriented to helping others.

The findings of the study indicated that there are statistically significant differences between the people who have experienced formal and informal mentoring and those who have not. The study has shown that the people with formal mentoring experience are in agreement with formal mentoring programs and have experienced higher levels of knowledge sharing than those who have not experienced formal mentoring. This result means that the more the employees go through formal mentoring programs, the more they tend to be motivated to share their knowledge. Although the *t-Test* results indicate that there are statistically significant differences between the people who have experienced informal mentoring and those who have not, there is little support for informal mentoring with regard to knowledge sharing. When informal mentoring was evaluated there was no significant correlation with regard to knowledge sharing (table 3). The results differ with Karkoulian et al. (2008), who argued that the more the people are involved in informal mentoring, the more they will experience knowledge sharing.

The study was mainly conducted at one site of a Steel manufacturer (there are four sites in total). Hence, the study was only limited to the participants in a particular site of a Steel manufacturer and it is in this regard that the reader should be cautious when interpreting and generalising for the whole company. The cross-sectional design survey was used and is limited because it is confined to a specific point in time, i.e. it provides us with a snapshot of the population at a single point in time. The characteristics of the population change continuously and as a result the cross-sectional design do not reflect the actual situation over a time period. Since the research method used has a limitation for causality, the reader should be cautious with the results of the study because they can only be used to indicate the relationships (between mentoring and knowledge sharing) and cannot be used to speculate whether mentoring cause ease of knowledge sharing. The research

should be expanded to include more employees, as well as other branches of the company throughout South Africa. This will to overcome the limitations of the current study. The current study is only limited to response of 134 participants who completed the questionnaires at one of the four side of the entire steel manufacturing company. Future research should also further compare the responses between different levels of education. This will help senior human resource management to properly structure mentoring programs for each education level. Management should further develop social programs to encourage the informal sharing of knowledge. This might enhance knowledge sharing. Future research should also focus on other factors that are associated with knowledge sharing such the size of the organisation, organisational culture, organisational structure, employee motivation and senior management commitment.

4.5 CHAPTER SUMMARY

In this chapter, the empirical results were discussed by focusing on the descriptive statistics, correlation matrix for measured variables, *t*-test results, and a discussion of the results. The next chapter will focus on the study limitations, research conclusions and recommendations.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the previous chapter, the empirical results were discussed by focusing on the descriptive statistics, correlation matrix for measured variables, *t*-Test results, and the discussion of the results. The current chapter will cover the study limitations, research conclusions and recommendations.

5.2 CONCLUSIONS

The study set out to achieve the following primary and secondary objectives:

Primary objective

The study sets out to *determine the relationships* between the different types of *mentoring, and knowledge sharing, and* to determine impact of formal and informal mentoring on knowledge sharing experiences.

Secondary objectives

- To determine the relationship between types of mentoring, knowledge sharing, organisational rewards, enjoyment in helping other, and knowledge self-efficacy;
- To determine whether people from formal mentoring programmes experience knowledge sharing differently from those who had no formal mentoring; and
- To determine whether people from informal mentoring programmes experience knowledge sharing differently from those who had no informal mentoring.

Findings:

The findings of the study indicated positive relationships between formal mentoring and informal mentoring, formal mentoring and knowledge sharing (in agreement with Karkoulian *et al*., 2008), formal mentoring and enjoyment in helping others, informal mentoring and organisational rewards, knowledge sharing and enjoyment in helping

others (in agreement with Lin, 2007b), knowledge sharing and knowledge self-efficacy (in agreement with Lin, 2007b), and knowledge self-efficacy and enjoyment in helping others. A somewhat unexpected finding is the negative relationship observed between formal mentoring and organisational rewards. The findings of the study have revealed that people, who have experienced formal mentoring, are in agreement with formal mentoring programmes and have experienced higher levels of knowledge sharing than people who have not. This is in agreement with the previous study by Karkoulian *et al*. (2008), with regard to the relationship between knowledge sharing and mentoring. The findings of the study have also shown that people, who have experienced informal mentoring, are in agreement with both the formal and informal mentoring programmes and have experienced higher levels of knowledge sharing than people who have not. The findings of the study have revealed that, on average, employees agree that they have received some form of support from formal and informal mentoring, there is some form of knowledge sharing in an organisation, they enjoy helping others, they have confidence in their abilities to contribute valuable knowledge to the organisation and disagree to be rewarded for sharing their knowledge with others.

5.3 RECOMMENDATIONS

The following recommendations are made:

- The research should be expanded to include more employees, as well as other branches of the company throughout South Africa. This will overcome the limitations of the current study. The current study is only limited to the responses of 134 participants who completed the questionnaires at one of the four sites of the entire steel manufacturing company.
- The research should also furthermore compare the responses between different levels of education. This will help senior human resource management to properly structure mentoring programmes for each education level.
- Management should further develop more formal mentoring programmes to encourage the formal sharing of knowledge. This will further improve the strength of the relationship between formal mentoring and knowledge sharing.

- Future research should also focus on other factors that are associated with knowledge sharing. Factors such as the size of the organisation, organisational culture, organisational structure, employee motivation and senior management commitment.

5.4 STUDY LIMITATIONS

The study was mainly conducted at one site of a steel manufacturer (there are four sites in total). This means that the employees selected only represented the portion of the entire population of the organisation. Therefore, the study was only limited to the participants in a particular site of a steel manufacturer and it is in this regard that the reader should be cautious when interpreting the results and generalising for the whole company. The cross-sectional design survey was used and is limited because it is confined to a specific point in time, i.e. it provides us with a snapshot of the population at a single point in time. The characteristics of the population change continuously and as a result the cross-sectional design do not reflect the actual situation over a time period. Since the research method used has a limitation for causality, the reader should be cautious with the results of the study because they can only be used to indicate the relationships (between mentoring and knowledge sharing) and cannot be used to speculate whether mentoring causes ease of knowledge sharing.

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APPENDICES

APPENDIX 1: KNOWLEDGE SHARING AND MENTORING QUESTIONNAIRE

APPENDIX 1: KNOWLEDGE SHARING AND MENTORING QUESTIONNAIRE

KNOWLEDGE SHARING AND MENTORING

Please rate the extent to which you agree/disagree with the following statements by making an "X' over the appropriate number on the 1 to 5 point scale next to the statement.

1 = Strongly Disagree	***2 = Disagree***	***3 = Neutral***	***4 = Agree***	***5 = Strongly Agree***

	STATEMENT	SCALE				
1	There is a graduate training program in place	1	2	3	4	5
2	Formal mentoring has significantly enhanced the progress of my career	1	2	3	4	5
3	Mentees in a formal program receive much more help and assistance in their career from superiors than do mentees in an informal program	1	2	3	4	5
4	Formal mentoring results in greater motivation, more commitment and better performance on the part of the mentees	1	2	3	4	5
5	The face to face mode is used to assists the	1	2	3	4	5

	informal mentoring process					
6	**Learning acquired from informal mentoring is deeper, richer and stronger**	**1**	**2**	**3**	**4**	**5**
7	**Informal mentoring motivates employees**	**1**	**2**	**3**	**4**	**5**
8	**Informal mentoring occurs naturally in all organisations to some degree**	**1**	**2**	**3**	**4**	**5**
9	**Knowledge sharing among employees of my division/ units is difficult**	**1**	**2**	**3**	**4**	**5**
10	**Knowledge sharing among employees of different divisions/ units is difficult**	**1**	**2**	**3**	**4**	**5**
11	**Knowledge is accessible to everyone in my organisation when needed**	**1**	**2**	**3**	**4**	**5**
12	**My organisation develops a culture that promotes sharing of knowledge**	**1**	**2**	**3**	**4**	**5**
13	**Sharing my knowledge with colleagues should be rewarded with a higher salary**	**1**	**2**	**3**	**4**	**5**
14	**Sharing my knowledge with colleagues should be rewarded with a higher bonus**	**1**	**2**	**3**	**4**	**5**
15	**Sharing my knowledge with colleagues should be rewarded with a promotion**	**1**	**2**	**3**	**4**	**5**
16	**Sharing my knowledge with colleagues should be rewarded with an increased job security**	**1**	**2**	**3**	**4**	**5**
17	**I enjoy sharing my knowledge with colleagues**	**1**	**2**	**3**	**4**	**5**

18	**I enjoy helping colleagues by sharing my knowledge**	**1**	**2**	**3**	**4**	**5**
19	**It feels good to help someone by sharing my knowledge**	**1**	**2**	**3**	**4**	**5**
20	**Sharing my knowledge with colleagues is pleasurable**	**1**	**2**	**3**	**4**	**5**
21	**I am confident in my ability to provide knowledge that others in my company consider valuable**	**1**	**2**	**3**	**4**	**5**
22	**I have the expertise required to provide valuable knowledge for my company**	**1**	**2**	**3**	**4**	**5**
23	**It does not really make any difference whether I share my knowledge with colleagues**	**1**	**2**	**3**	**4**	**5**
24	**Most other employees can provide more valuable knowledge than I can**	**1**	**2**	**3**	**4**	**5**

DEMOGRAPHIC AND PERSONAL DATA

This portion of the survey is concerned with your background and work experience. This information will help identify trends in the data for different groups of employees. Please remember that your responses are completely confidential.

Age
- 20 – 29 ☐
- 30 – 39 ☐
- 40 – 49 ☐
- 50 – 59 ☐
- 60+ ☐

Gender: Male ☐ Female ☐

Race: White ☐ Black ☐ Asian ☐ Coloured ☐ Other ☐

What is the highest level of education you have complete?

- National Certificate ☐
- National Diploma ☐
- 3-Year Degree ☐
- Post Graduate Qualifications ☐

For how many years have you been employed in this organisation?

- 0 – 5 years ☐
- 6 – 10 years ☐
- 11 – 15 years ☐
- 15 – 20 years ☐

21 – 25 years ☐

26 – 30 years ☐

31+ ☐

"***Formal mentoring*** *takes place when the organisation provides and sets the support structures to ensure that participants have clarity of purpose and the support they may need to make a successful relationship."*

"***Informal mentoring*** *takes place when two people without the assistance and guidance of the organisation establish a developmental alliance."*

	Yes	No
I have experienced formal mentoring	☐	☐
I have experienced informal mentoring	☐	☐