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CHAPTER 1

THE PROBLEM AND ITS SETTING

1.1 Introduction

Research on team climate can only be of value to an organization if it can be proven that climate has an affect on team effectiveness. If this is established, then organizations will only be interested in the climate research if it could be illustrated that an intervention to alter or enhance a team climate is possible. Team climate does have a relation to team effectiveness. Ford and Seers (2006) refer to team with-in agreement on team climate being related to the psychological wellbeing of individuals. Patterson, Warr and West (2004) research results on their study of organizational climate and productivity, positively linked climate with productivity prediction. They based their productivity measure on aspects like organizational support, flexibility, and concern for employee welfare to name a few. These aspects are some of the policies, procedures and practices on which employees form a perception of what is important for the organization and what behaviour based on this perception is rewarded. This perception of the social environment with-in the team influences behaviour and should be of interest to organizations if these perceptions can be influenced.

Organizations are continuously faced with increasingly complex and uncertain business environments. Growing global competition and ever changing consumer demands put organizations in a position where the ability of their members to find solutions to these problems becomes a competitive advantage (Muthusamy, Wheeler & Simmons, 2005).

According to Kreitner and Kinicki (2001), organizations change their structures to support this new flexible strategy. Flatter structures, based on the instant availability of management information and organized around teams, will give organizations the competitive edge they need. The use of work teams is now recognized as a success component of every enterprise (Jordan, Feild & Armenakis, 2002). Teams help to increase the participation level in organizations (Senge, 1990; Ragazzoni, Baiardi, Zotti, Anderson & West, 2002), and possess more knowledge and process more information than individuals can on their own (Loewen & Loo, 2004). Research by Anderson and West (2002) has shown that teamwork has increased commitment, efforts, loyalty and innovativeness of employees, but they argue that a supportive team climate is needed to determine success.

Contrary to past beliefs in a homogeneous workforce that portrayed a particular image and value system, organizations today adapt their operations to kindle diversity. Teams are the ideal work structure in which team members can influence each other's thinking and perceptions in order to reach consensus on issues of mutual concern. Individuals however,

differ in their self-concept (Kreitner & Kinicki, 2001), their way of interacting with team members (Saavedra & Van Dyne, 1999), their personal traits like goal orientation (Steele-Johnson, *et al.*, 2000) and abilities like emotional intelligence (Mayer, Salovey & Caruso, 2000).

A team is dependent on the contributions of its members towards achieving team goals. Apart from the normal decision-making processes inside a team or the way in which the team members resolve conflict with-in the team, a challenge for team members is to find consensus on the way they perceive their work climate.

Extensive research reports are available on the interaction between team leaders and team members and the reaction of team members to team leadership. However, little research has been done on how members of teams interpret and evaluate their collective experience in the team context (Drach- Zahavy & Somech, 2001; Roberson, 2006) or on the influence and contributions made by teams to establish consensus on their perception of the team climate they work in. The assumption of this evaluative, interaction and influencing process between team members is the underlining focus of this research.

Schneider (1990) describes organizational climate as an assigned label to a perception of routines in the workplace and the rewards thereof. Individuals are the source of these perceptions and if they share perceptions on a dimension such as innovation, it is possible to aggregate their scores because “perceptual agreement implies a shared assignment of meaning” (James, Joyce & Slocum, 1988:129). James and McIntyre (1996) believe that individuals respond to work environments in terms of how they perceive it and then simultaneously attach a meaning to the situation. Therefore, if the team members agree on the perception of the situation, or policy and procedures, then it can be described as a shared perception (James & McIntyre, 1996; Pirola-Merlo, Härtel, Mann & Hirst, 2002; Schneider, 1990).

Anderson and West (1998) believe that it is most likely that a common understanding of experience will develop where individuals have the opportunity to interact and co-construct perceptions within their normal work environment. Research of Anderson and West (1996) indicated that teamwork increases the level of participation in organizations. This is confirmed by Ragazzoni, *et al.* (2002) but with the prerequisite that teamwork requires a stimulating climate or atmosphere to flourish in (Bain, Mann & Pirola-Merlo, 2001). The perception of this climate and the factors that influence this climate is the focus of this study.

1.2 The problem and its significance

Behaviour is influenced within the climate where it occurs. Therefore, as an example, a team climate of innovation influences the way team members perceive and execute their innovation mandate. Members of the team experience this perceived climate as either conducive or not conducive to their particular behaviour.

Although behaviour is influenced within the climate, this climate exists through the perception of the members of the team. Individuals form a perception of the climate they work in. To be able to refer to a team climate, the team should share the perception of the climate they work in. This can be achieved by aggregating the scores of the different individual perceptions to form the team perception of the climate. At least three aspects should be present to create this shared perception. These are frequent interaction, common goals and task interdependence (Anderson & West, 1998). It is proposed that through working closely together and sharing tasks in order to accomplish common goals, the team members' perception of their work environment will be aligned. This alignment will create the environment to form a shared perception of the climate they work in.

The aim of the study is to explore whether there are factors that can be implemented to enhance this shared perception. It was decided to investigate whether emotional intelligence, goal orientation and a team member exchange process are variables that may help influence team members to be more aligned with each other's perceptions inside the team. For instance by understanding each other's emotions and limitations, team members can assist each other and influence each other to share in the perception of the climate.

Owing to their diverse abilities, attitudes and personal traits, team members contribute to team activities to a varied degree. For example, team members with a low emotional intelligence measure will not be able to understand and control their own emotions and to understand and influence emotions in others. On the contrary, team members with a high emotional intelligence measure will be able to monitor their own and others' feelings and emotions, to discriminate among them and then to use this information to guide their own thinking and actions and also influence those of others (Salovey & Mayer, 1990).

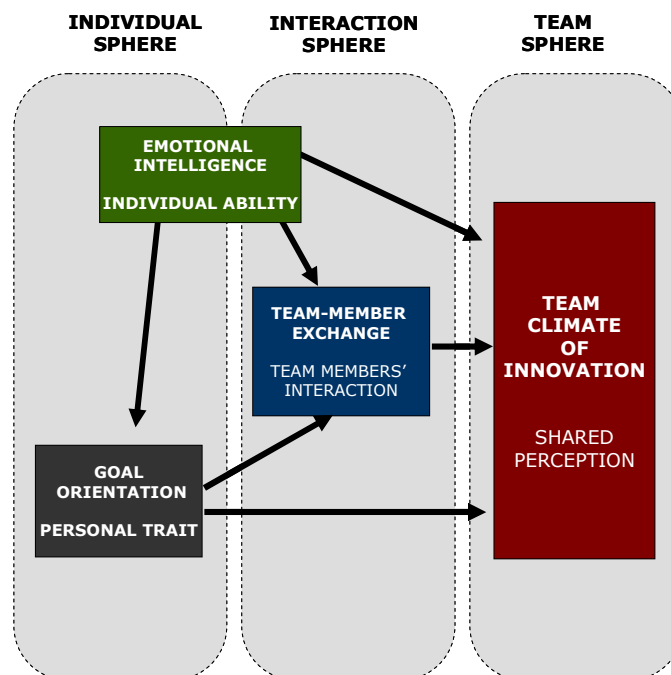
Similarly, team members with a low team members exchange quality will not see the possibilities to form exchange relationships inside the team for their own benefit as well as the benefit of the team (Cole, Schaninger & Harris, 2002). Then again, team members with a high sense of team member exchange will seize the opportunity to collaborate with fellow team members so that social exchanges may take place in anticipation of a reciprocated exchange at a later stage (Seers, 1989).

It would, lastly, be difficult for someone in a team to take risks and to make mistakes in the event of trying innovative ideas while he has a performance goal orientation. Such a person would not perceive the climate as supporting any innovative activities. A person with a learning goal orientation, on the other hand, would appreciate feedback and perceive setbacks as a challenge to try again and to try innovative ways of reaching his goals.

It is anticipated that the research would show a correlation between the different variables. If true, it would be possible for a person with a high level of emotional intelligence to understand his own emotions and he would, for example, also understand the emotions of a person with a performance goal orientation. Through exchange of feedback, and perhaps the sharing of necessary skills, the team member with stronger emotional intelligence abilities will be able to assist his fellow team member with a performance goal orientation to see taking risks not as a possible failure but as an opportunity to try something new and to grow in knowledge and self-confidence. This mutual insight in how fellow team members think and interact towards common goals will probably influence their perception about the climate they work in and stimulate their behaviour in this regard.

The model below was developed to guide the study in three different spheres. First, the model indicates that goal orientation is a personal trait and will fall into the individual sphere. It also shows that goal orientation will probably influence team member exchange in the interaction sphere as well as the team climate in the team sphere.

Figure 1. 1: Research Conceptual Model



The model illustrates that emotional intelligence fits in the individual sphere as well as the interaction sphere. An individual can understand and control his own emotions and can also have the ability to understand and influence the emotions of others.

The team member exchange construct refers to the interaction between team members, and it is postulated that it has an influence on the team climate. Therefore, it is linked to the team sphere. The model further indicates that team member exchange (TMX) is also influenced by emotional intelligence and goal orientation.

An important construct development since dyadic social exchange mindset is that team member exchange describes the exchange actions between members in a team. Team member exchange is the vehicle to facilitate influence on team members' shared perception. Through team member exchange, perceptions within the team are reinforced or discouraged, and according to Anderson and West (1998) it is one of the three prerequisites for a team climate to form. This exchange process creates the possibility for an increased interaction in the team, which creates interdependence among the team members. This is another condition for a shared perception to develop (Anderson & West, 1998). It is hypothesized that where team members do not necessarily share a vision or share the understanding of team goals, this exchange process will help establish the notion in order for all members of the team to be aligned towards the same goals.

As an objective to answer from the literature, the study will endeavour to establish whether the team member exchange process is the facilitating agent to influence an individual's behaviour and attitudes inside a team.

All of the above will direct the study to establish whether there is a correlation between the three individual variables (EI, TMX and GO) and a team climate. If the correlation does exist, it would be possible for team leaders to develop, train and coach team members to enhance aspects of the three variables that would help team members to make full use of all their team interacting abilities

1.3 The scope of the research

This research will focus on the problem whether a team climate (as a group perception) can be predicted by means of emotional intelligence (an individual ability), team member exchange (a group process), and team member goal orientation (an individual or personal trait).

Team climate is a product of team members' perception of their work environment. The relationship between team climate and the three independent variables (emotional intelligence, team member exchange and goal orientation) is based on the assumption that all three variables contribute to the influencing process on team members' perception of their work environment. The degree to which each of the three variables contributes to the within-team agreement process will be the degree to which each variable is predicting a team climate. As such, the literature study will try to highlight different aspects and dimensions of the variables to show that the variables play a role in influencing the perception of the team members and as a result thereof also adds to the prediction of a team climate.

The research focus will be analysed as the cognitive representation of the work environment (Anderson & West, 1998) and how the three independent variables will influence this cognitive representation.

The study will also not focus on whether it is possible to enhance aspects like emotional intelligence, goal orientation or team member exchange. Finally, the research will not endeavour to add to the improvement of the team performance body of knowledge.

1.4 Research objectives

To answer the formulated research problem, the following research questions were generated to guide the rest of the study:

1.4.1 What is the relationship between emotional intelligence, team member exchange, team member goal orientation and a team climate?

1.4.2 What is the predictability of emotional intelligence, team member exchange, and team member goal orientation on team climate as outcome variable?

1.4.3 Is there a combination of emotional intelligence, team member exchange and goal orientation that predicts team climate better than any one alone and, if so, what is the best combination?

1.4.4 Is there a significant relationship between team climate and team member exchange?

1.4.5 Build a Structural Equation Model to predict team climate.

In order to address the research objectives and provide answers to these questions, a literature study will be done to include the following:

Team climate
Emotional intelligence
Social exchange theory
Team member exchange
Goal orientation

1.5 Study outline

The literature study is captured in Chapter 2. Chapter 3 will reflect the methodology. Chapter 4 discusses the results. Chapter 5 will accommodate the discussion of results, the conclusion and some recommendations.

CHAPTER 2

LITERATURE STUDY

2.1 Organizational Climate

2.1.1 Introduction

Research on organizational innovation is well established and has received extensive attention since the mid 1970s (Nyström, 1990). This increased attention was in line with business pressure on organizations and brought the realization that business practices had to change to be more flexible and adaptive (Montes, Moreno & Fernández, 2004) to international benchmarks and market trends (McMurray, 2003). Nyström (1990) refers to a cutting edge case study of the mid 1980s where a leading Swedish chemical company, EKA Nobell, used quantitative as well as qualitative research methods to try and understand managerial as well as psychological variables that influenced organizational innovation.

The growing interest in less tangible collective-level phenomena like organizational climate, the process of innovation and group interaction processes was confirmed by Anderson and West (1996). According to them, international business changes provoked developments in organizational designs that eventually led to new forms of organizations and particularly the increased use of teamwork.

Multiple skills and an ability to pool resources in order to reach innovative solutions proved to be the answer (Mathisen, Einarsen, Jørstad & Brønnick, 2004). This meant that individual job functions started to evolve into team functions (Ragazzoni, Baiardi, Zotti, Anderson & West, 2002). Anderson and West (1996) believe that teamwork increases the level of participation in organizations and thus also the level of innovation. This is confirmed by Ragazzoni, et al. (2002) but with the prerequisite that innovative teamwork requires a stimulating climate or atmosphere in which to flourish (Bain, Mann & Pirola-Merlo, 2001). These trends demanded pragmatic and valid measures of group and organizational phenomena (Anderson & West, 1996) and were the motivation behind the renewed research interest.

Dunegan, Tierney and Duchon, (1992) emphasize that individuals are the driving force behind any successful innovative intervention in an organisation. Yet they report that having the right people does not automatically deliver the innovative solutions. They propose that innovative thinking has to be stimulated and it should be supported in a work climate compatible with innovation. Kozlowski and Hulst (1987) concur with this view. They, too, believe that all the technological acquisitions and other high-tech production changes will not establish an

innovative organisation. This will only happen when organisations cultivate continual knowledge and skills updating and the creation of a climate that supports innovation. Proudfoot et al. (2007) further strengthen this view when they state that four team processes are usually present when innovative teams are defined, viz clearly defined group goals; participative decision-making processes; quality task orientation and perceived support for innovation.

Climate is assumed to be the aggregation of individual perceptions of the organisational context, processes and other support structures. These perceptions represent the individuals' interpretations of the organisational context they work in, and these perceptions direct individual behavioural responses (Schneider, 1985; Kozlowski & Hults, 1987). If the perceptions of the climate that people work in guide their behaviour, then it is likely that those perceptions of climate, and the responses that follow, may be influenced through appropriate structures, processes and interaction in the organization (Mossholder & Bedeian, 1983; Kozlowski & Hults, 1987; Drach-Zahavy & Somech, 2001).

2.2 Team Climate

2.2.1 *Definitional issues*

Anderson and West (1998) refer to a growing interest in climate research over the last decade. However, they show that despite this growth, research was affected by two major difficulties: firstly, defining the notion of climate and, secondly, measuring climate accurately at different levels of analysis (Anderson & West, 1998).

2.2.2 *Defining climate*

Two conflicting approaches were used. James, Joyce and Slocum (1988) refer to the first and probably more popular opinion of climate as a psychological climate. This view, also called the cognitive schema approach (Anderson & West, 1998), refers to the individual's cognitive representation of the practices and procedures he is confronted with and how the individual makes sense out of his direct work environment. People then use their perceptions to adapt their behaviour in order to be in balance with their environment (Anderson & West, 1998).

In contrast to this view, Glick (1985) defines climate as an organizational attribute rather than an individual one. Glick conceptualizes climate in terms of other constructs such as interpersonal practices, subjectively developed meanings of policies and practices, and not as a mere aggregation of individual perceptions of the psychological climate (Baer & Frese, 2003).

The climate concept is formed if the organization members' perceptions of the observable practices and procedures in the organization are labelled into different dimensions (Denison, 1996). Scott and Bruce (1994) further added that climate represents the perception that individuals form from organizational expectations regarding performance output. Guided by their perception, people respond to these expectations by adapting their behaviour in order to realize self-evaluated positive outcomes. An important qualification is that individuals do not merely respond to their work environment directly, but first perceive and interpret it against their climate framework (Carr, Schmidt, Ford & DeSchon, 2003).

Schneider and Reichers (1983) indicated that some progress was made in the development of a climate construct. According to them, the biggest step was to acknowledge the emphasis on the importance of group phenomena in organizational research (Schneider & Reichers, 1983). They claim that the following four advances can be identified in the development of the climate construct:

Previously underestimated, it was now acknowledged that perceptions of individuals play an important role in climate research in an attempt to understand behaviour at work (Schneider & Reichers, 1983).

Group phenomena previously did not receive the attention they deserved. It was now recognized that climate research should be based on "aggregated or group level data in order to discover relationships between clusters of perceptions and organizationally relevant outcomes" (Schneider & Reichers, 1983: 21).

A third advance according to Schneider and Reichers (1983) was that a distinction was made between psychological climates and organizational climates. They believe that a psychological climate refers to the meaning an individual attaches to a work context and an organizational climate refers to the summated, averaged meaning that people attach to a particular feature in the workplace (Schneider & Reichers, 1983).

The last advance according to Schneider and Reichers was that people make sense out of clusters of psychologically related events. This means that there are numerous events, practices and procedures that people perceive and attach a meaning to. Therefore, there may be many different types of climate in one workplace, for example, a climate for safety, a climate of innovation, or a climate for achievement (Schneider & Reichers, 1983).

2.2.3 Individual perception vs an aggregated team perception

Aggregating the individual perception scores in order to find a measure of a team's climate score has been a contentious issue since the construct was developed (Baer & Frese, 2003).

James, Joyce and Slocum (1988) are of the opinion that it is justifiable to label organizational climate as the collective perception of all the individuals in the team. Through this approach, climate would be defined as the shared perceptions that a group or team infer from organizational policies, practices and procedures (Anderson & West, 1998). Climate influences individual behaviour, and therefore climate also indicates the kinds of behaviour that are expected and that get rewarded and supported within an organization (Schneider, Brief & Guzzo, 1996).

Researchers started to consider individuals' descriptions of practices and procedures as representing the view of the organization (Schneider, 1975). The locus of explanation of climate is the individual and is therefore on a psychological level (James & McIntyre, 1996). This means that the perceptions of individuals, working in a team, could be aggregated to indicate the climate in that subsection of the organization because the aggregated perceptions indicate how individuals feel about their organization (Schneider & Reichers, 1983; James, Joyce & Slocum, 1988; Baer & Frese, 2003; Mathisen, Einarsen, Jørstad & Brønnick, 2004). Perceptual agreement justifies aggregation of individual perception scores because such agreement implies a shared assignment of meaning (James, Joyce & Slocum, 1988).

These shared perceptions are developed through social interaction and the influence of new members by existing members of the organization (Schneider & Reichers, 1983). A shared assignment of meaning also justifies aggregation to a higher level of analysis because it facilitates a way of relating a construct like psychological climate on an individual level to another form of construct at a different level of analysis like team climate (James, Joyce & Slocum, 1988). This shared assignment of meaning is the result of the joint experience of individuals in a team and justifies the traditional practice that the research on a climate for innovation was mostly done on a team level (Mathisen *et al.*, 2004).

If the perceptions are then shared, they can be described in statistical measures of central tendencies (James, Joyce & Slocum, 1988). The use of aggregated individual scores allows researchers the opportunity to describe environments in psychological terms (James, Joyce & Slocum, 1988).

Schneider (1990) describes climate as an assigned label to a perception of routines in the workplace and the rewards thereof. Perception becomes the basic diagnostic data of climate research (James, Joyce & Slocum, 1988; Schneider, 1990). Although individuals are the source of these perceptions, it is not always clear under what conditions individuals' perceptions may be aggregated to reflect the shared perception of a work team (Schneider, 1990). James, Joyce and Slocum (1988) believe that if individuals in an organization share

perceptions on a dimension such as conflict or innovation, it is possible to aggregate their scores because “perceptual agreement implies a shared assignment of meaning” (James, Joyce & Slocum, 1988:129; Mathisen *et al.*, 2004; Baer & Frese, 2004). Schneider (1990) highlights this argument as a distinction between the individual as the unit of data and the work team as the unit of analysis. James and McIntyre (1996) believe that there is no inconsistency to define a construct as psychological when referring to an individual’s perception of climate and then also to use the construct to describe higher levels of analysis when referring to the aggregated perceptions of individuals in teams. This can be done on condition that the team members agree on their perception of a specific aspect. If there is consensus, this can be interpreted as a shared meaning (Denison, 1996).

James and McIntyre (1996) are of the opinion that the definition of climate is in the eyes of the individual and therefore a psychological construct. They believe that individuals respond to work environment in terms of how they perceive it and then simultaneously attach a meaning to the situation. If the team becomes the unit of analysis, it is then correct to aggregate the team members’ climate scores to form a team climate perception. If the team members agree on the perception of the situation, or policy and procedures, then it can be described as a shared perception (Schneider, 1990; James & McIntyre, 1996; Pirola-Merlo, Härtel, Mann & Hirst, 2002; Mathisen *et al.*, 2004).

Anderson and West (1998) believe that three conditions should be present for perceptions to be shared in a team. They believe that:

individuals should frequently interact during their normal working hours;
the team should have common goals that align and influence them to act collectively; and
there is sufficient task interdependence to urge team members into a shared understanding and expected pattern of behaviour (Anderson & West, 1998).

Anderson and West (1998) acknowledge that these three aspects are not the only variables to influence shared perceptions. They agree that, for example, exposure to common experiences in a team context may lead to members sharing an understanding of their experience. Anderson and West (1998) believe that it is most likely that a common apprehension of experience will develop where individuals have the opportunity to interact and co-construct perceptions within their normal work environment. However, this would probably occur more in a team context than in the greater organization because the three factors mentioned above would be more identifiable in a team context. This construct emphasises the challenge to measure whether such a shared perception does exist in a team.

2.2.4 *Generic or facet specific*

Climate researchers have always agreed that it was difficult to define the climate notion on its own. It is difficult to measure it as a general construct, as the measurement might include more than one subdimension. The answer was to deconstruct the notion into subdomains or facet specific constructs (Schneider 1975; Anderson & West, 1998). This made it easier to measure the different perceptions of individual team members of the same dimension (Anderson & West, 1998; Schneider & Reichers, 1983).

Schneider (1975) argued that organizations, and therefore also teams, have multiple climates representing multiple perceptions of different aspects of the organization's functioning. Given this argument, researchers soon realized that general measures of climate subsumed measures of, for example, leadership, group interaction, and job satisfaction, which lead some researchers to question the uniqueness of the original construct (Dickson *et al.*, 2001). To overcome this problem, researchers focused the construct on the particular types of climates that can emerge in an organization, for example a climate for safety, a climate for leadership, or a climate for innovation (, 1983; Anderson & West, 1996; Anderson & West, 1998; Dickson *et al.*, 2001; Schneider, 1975; Schneider & Reichers).

According to Anderson and West (1998) the test would be to make sure that a measurement of a team climate of innovativeness, with the team as unit of analysis, does indeed measure the shared perception of the team members on innovation within the context of the team, and that the validity and reliability of the construct can be proven (Anderson & West, 1998).

The most studied model of a facet specific concept is the model developed by Anderson and West from the initial four-factor model proposed by West (1990) for a team climate for innovation (Anderson and West, 1996; Mathisen, Einarsen, Jorstad & Bronnick, 2004). According to this model, group innovation essentially relates to four group factors, namely vision, participative safety, task orientation and support for innovation. Groups who agree on objectives and who are guided by an aligned vision will probably produce innovative working methods, more so than groups who are not focused (Kivimaki, Kuk, Elovianio, Thomson, Kalliomaki-Levanto & Heikkila, 1997). The model stresses the importance of participation in decision-making as this increases the likelihood of members investing in the outcome of the decision and then being willing to offer new ideas (Kivimaki *et al.*, 1997). However, this will only be possible if the members feel safe to participate and know that the rest of the team will value their contributions. The third factor in the model represents the team's task orientation. According to Anderson and West's model, this factor measures the dedication of the team to continuously challenge the standard of performance and includes a progress monitoring procedure (Ragazzoni, *et al.*, 2002). This dedication is based on high standards but also organizational support for innovation (Kivimaki *et al.*, 1997).

2.2.5 TCI four factor theory

It is important to understand the theory of West's model in order to understand the proposed interaction of the variables under research in this study. West (1990) proposes that innovation can be measured in terms of both quantity and quality. According to West, quantity refers to the number of new ideas introduced and complemented according to predetermined criteria of significance. Quality can be assessed in three ways, namely in relation to the newness of the idea; to the rated significance of the idea, and to the ultimate effectiveness of the idea (West, 1990).

2.2.6 Vision

Vision represents a higher-level outcome or goal that acts as an inspiration for the team members (Anderson & West, 1998). This idealized vision should be achievable in order to motivate innovation. If the goal is set too high, it becomes demotivating and if too low, it does not inspire action or innovativeness. Vision also implies an additional value component to the objective (West, 1990).

The vision acts as a facilitator of innovation. The clearer the vision, the more effective it will enable innovation as it acts as a benchmark against which all new ideas are measured (West, 1990).

West believes that a shared involvement of the team in setting a vision will align thoughts and will foster greater commitment towards common goals in the team. This, according to West (1990), stands in contrast to a vision that was imposed on the team to follow. Such a vision will more likely alienate team members and will have a negative influence on team members (West, 1990).

2.2.7 Participative safety

Participative safety describes an atmosphere that is conducive to participating in team activities such as decision-making and which is non-threatening but rather one of trust and support. In a climate of participative safety, individuals feel safe to invest energy and emotions as contribution to a bigger team effort (Anderson & West, 1998; Kivimaki, Kuk, Elovianio, Thomson, Kalliomaki-Levanto & Heikkila, 1997). In a participative safety climate, interpersonal processes are non-judgemental and supportive of the individual contributions and are characterized by socio-emotional cohesiveness (West, 1990). It is believed that through influence, interacting and information sharing, team members contribute towards the results of decisions as a team and also offer new innovative ways of working because they

feel emotionally safe to do so (West, 1990). Contrary to this statement it is argued that if an individual feels that proposing a new idea will lead the rest of the team to censor the idea, the person will feel less inclined to make the proposal (West, 1990).

West (1990) refers to research that concurred that centralization of decision-making processes inhibits innovation at all levels of the organization. The same research argues that where decision-making is devolved, especially in flat organizational structures, there will be more autonomy and a more effective flow of information, which will always stimulate innovation (West, 1990).

2.2.8 Task orientation

This factor implies a commitment to team performance at the highest possible standards and is linked to a climate that supports changes to policies and procedures in order to sustain performance (Anderson & West, 1998; Kivimaki, et al., 1997).

The characteristics of a team with a high task orientation, or a climate for excellence as it is also called, are an emphasis on individual and team accountability, control systems for evaluating and modifying performance and critical approaches to quality of task performance. Other characteristics are also inter-team advice, feedback and cooperation, mutual monitoring and appraisal of performance and ideas (West, 1990). According to West (1990), a commitment to excellence creates a demanding group environment in which new and existing practices are appraised and challenged. Team members are likely to monitor each other's work and encourage high standards in an effort to control possible risks and non-conformance with agreed performance standards (West, 1990).

2.2.9 Support for innovation

The fourth factor in West's model for a climate of innovation is a support for innovation. New ideas within a group may either be supported or rejected. Verbal support is offered to help develop or support new ideas. Time, resources and cooperation are offered to endorse practical support for innovative ideas and suggestions. However, team members may also not support innovative ideas and will either reject innovative proposals or withhold practical support by ignoring requests for assistance in this regard. In a climate of high support for innovation it can be expected that there will be a safe environment to participate with a tolerance for error if the new idea fails to work (West, 1990). The team therefore creates a climate for safe experimentation in support of innovation (West, 1990; Anderson & West, 1998; Bain, Mann, & Pirola-Merlo, 2001; Kivimaki, et al., 1997). West (1990) finally stresses the importance of senior management's support for innovation. Their support will almost

guarantee the implementation of any new idea that is aligned with corporate goals and values.

2.3 Summary

A team climate is formed when there is consensus by the individual team members on their perception of their teams' work context. This climate construct can be more specific by identifying the particular climate on which the team members form their perception. Their behaviour is guided by their interpretation of this climate. Research results have emphasized that individual behaviour and attitudes are influenced by group context (Kozlowski & Hults, 1987; Mossholder & Bedeian, 1983). If, therefore, the team members' perception can be influenced by affective reciprocation and by predispositional orientation of team members, then a solid start was made to answer questions one and two of the research questions posed in Chapter One.

2.4 Emotional Intelligence

2.4.1 Introduction

As the name emotional intelligence indicates, the construct was built on two main focus areas in psychology (emotion and intelligence), while a third, motivation, was not directly instrumental in the development of the construct. It is widely acknowledged that psychologists consider the mind in three main divisions (Mayer & Salovey, 1997). Firstly, the cognitive sphere includes functions such as memory and reasoning as well as abstract thought. Psychologists link the level of intelligence to the cognitive sphere to the extent of how well the cognitive sphere functions. To a certain extent, cognition serves motivation and emotion in that it solves problems so "that motivational needs may be met and emotions maintained at an acceptable level of positivity over time" (Mayer, 2001:415). Secondly, emotions are also called the affective sphere of mental functioning and include, amongst other things, moods, emotions and other feelings. It appears to signal and react to changes in the individual's relationship with his or her environment (Mayer, Salovey & Caruso, 2000).

Before the concept of emotional intelligence is discussed, a brief overview of the two separate constructs, intelligence and emotion, may be of value. This is to illustrate that some previous work may have served as basis in the development of the emotional intelligence construct (Schutte & Malouff, 1999; Sipsma, 2000).

2.4.2 Intelligence

Sternberg and Salter (1984) defined intelligence as goal-directed adaptive behaviour. They shifted the established idea that intelligent behaviour is the result of stimulus and reaction, to intelligent behaviour as the mental processes between the stimulus and response. The goal-directed element is linked to the adaptive character of intelligence and is common to most definitions of intelligence (Sternberg & Salter, 1984). Adaptive character refers to the problem-solving notion and the ability to find a solution to contextual problems (Sternberg & Salter, 1984). This intelligent behaviour is a counter-reaction to external demands. The authors argued that the most important characteristic of intelligent behaviour is the urge to solve life's problems in context.

Mayer and Salovey (1997) state that the twentieth century was marked with numerous attempts to identify new intelligences. According to them, researchers developed measures "for as many intelligences as they could imagine" (Mayer & Salovey, 1997:7). However, if all these are examined, there are some correlations among them, with perhaps three subgroups. The groups are verbal-propositional intelligence, which includes vocabulary and verbal fluency; spatial-performance intelligence, which includes abilities to reconstruct designs and assemble objects; and then social intelligence, which concerns itself with people's skills in relation with one another (Mayer & Salovey, 1997).

Social intelligence had its own controversy, as it could not be distinguished from the other more separate groupings. According to Mayer and Salovey (1997), the major mid-century intelligence test, the Wechsler's Intelligence Scale, did not even measure social intelligence, as it was believed that the other two groupings sufficiently included social aspects to cover this concept (Mayer & Salovey, 1997). This prompted Salovey and Mayer (1990) to replace social intelligence with emotional intelligence in order to combine a group of skills that would be different from verbal-propositional as well as spatial-performance intelligence and yet be recognized as a separate group of intelligences to be worthy of inclusion in the suggested intelligence triad. The worthiness of inclusion was, according to Mayer and Salovey (1997), that emotional reasoning was possible and could therefore be considered as an intelligence. They emphasized that emotional intelligence was not a preferred way of behaving or a trait and it was not a non-intellectual ability or talent (Mayer & Salovey, 1997). Contrary to a trait or talent, an individual might have an actual ability to know what another person is feeling based on considerable thinking processes, and this ability could therefore be considered an intelligence (Mayer & Salovey, 1997). Goleman (1995) acknowledge the theory developed by Mayer and Salovey, which places emotional intelligence within a model of intelligence. Goleman (1995) also acknowledge Bar-on's theory of placing emotional intelligence in a personality theory context with a focus on well-being. With these two frameworks in mind,

Goleman positions his own emotional intelligence model within the performance theory (Goleman, 1995). Goleman believes that an emotional intelligence based theory of performance has a direct influence on work and organizational effectiveness and, more importantly, can be used to predict success in all kinds of organizational functions including leadership (Goleman, 1995). These different viewpoints will be discussed in more detail later in the chapter.

Gardner (1999) developed a theory of multiple intelligences, consisting of seven different intelligences, namely linguistic, logical-mathematical, musical, bodily, kinaesthetic, spatial and personal intelligence. The latter is further defined into intrapersonal and interpersonal and is also referred to as personal intelligence. Intrapersonal intelligence refers to the ability to internally distinguish among own feelings and to decide which feeling to reject and which to accept as beneficial to the self. Interpersonal denotes a person's ability "to understand the intentions, motivations and desires of other people and, consequently, to work effectively with others" (Gardner, 1999: 43).

In an effort to describe human faculties, Gardner (1999) first defined intelligence as "the ability to solve problems or to create products that are valued within one or more cultural settings" (Gardner, 1999:33). Since then Gardner has refined the definition of intelligence as "a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1999:34). In essence, Gardner hereby expanded the traditional known definition of intelligence to more than one and therefore included many capacities that fell outside the traditional scope of intelligence. In essence, this was a confirmation that Mayer and Salovey's emotional intelligence model based on a cognitive framework could be included into this expanded definition of intelligence.

2.4.3 Emotions

According to Sternberg and Salter (1984) emotion will manifest itself physiologically or behaviourally as response to internal or external factors. They also believe that this response is motivated by previous psychologically coded experience, which triggers emotional behaviour. There is general agreement that emotion and cognition are closely linked, yet there is disagreement on which of the two factors comes first.

Not all people and cultures categorize emotions the same, but similarities exist, especially in the way people express and identify emotions (Sternberg & Salter, 1984). Salovey and Mayer (1990) see emotions as cognitively organized responses to either internal or external events and reckon that they have some meaning to the individual, be that negative or positive.

This organized response is adaptive, which means that the individual's emotions may change when interacting with an external experience (Salovey & Mayer, 1990). Although emotions are private, they also occur in response to our relationships with people and situations we encounter (Mayer, 2001). Emotions evoke several basic behavioural responses to the relationship, for example crying when sad, or fighting when there is fear (Mayer, Salovey & Caruso, 2000).

Emotions serve to strengthen our relationships with people and experiences we encounter. Levenson (1999) proposes that emotions also help us to avoid situations or people that we recognize as previously negative experiences. Emotions are expressed to others by behaviour, e.g. facial, vocal or postural reactions (Gross & John, 1994). Averill (1998) believes that emotions can be considered as a form of communication interacting between the inner self and the social environment.

2.4.4 Emotional Intelligence: An introduction

During the past ten years, emotional intelligence became a popular research topic. Salovey and Mayer (1990) proposed that emotional intelligence consists of three main categories of adaptive abilities, namely appraisal and expression of emotion, regulation of emotion and the utilization of emotion in solving problems and decision-making (Jordan, Ashkanasy, Härtel & Hooper, 2002; Salovey & Mayer, 1990; Schutte, Malouff, Hall, Haggerty, Cooper, Golden *et al.*, 1998;). In 1995, Goleman popularized the concept by claiming that his emotional intelligence model could predict success, particularly at work, by helping people to work better, to communicate more efficiently and to make better decisions. The claim that emotional intelligence could help increase productivity was something that caught the imagination of all organizations struggling to improve efficiency (Goleman, 1995; Schutte *et al.*, 1998). Salovey & Mayer (1997) criticized the Goleman-model particularly because they viewed the claims about its contribution to performance and success as exaggerated.

The Goleman arguments, which are discussed in more detail later in the chapter, are, however, empirically supported by the research of Reuven Bar-on (2003). Bar-on (2003) refers to two major studies where the connection between emotional and social intelligence and performance in an organizational context was researched. The first was done in the United States Air Force comparing emotional intelligence scores (measured with Bar-on's EQ-I instrument) and low performing military recruiters. The results suggested unequivocally that successful recruiters were more emotionally intelligent than the less successful ones (Bar-on, 2003). The following subscales of emotional intelligence were highlighted as the main contributors to predict performance in USAF recruiters: assertiveness, problem-solving, social relationship, reality testing, and emotional self-awareness (Bar-on, 2003). The results

indicated that approximately “24% of the variance in the performance of recruiters can be accounted for by emotional and social intelligence” (Bar-on, 2003:7).

The second reference is to a study by Ruderman at the Centre for Creative Leadership for which Bar-on analysed the results (Bar-on, 2003). From a sample of 300 executives, a subsample of 126 individuals was selected to match the number of male and female participants. Their emotional and social intelligence were measured by Bar-on's EQ-I and each individual's leadership ability was assessed by an internally developed 360° multirater, called “*Benchmarks*” (Bar-on, 2003:8). The results indicated a very strong correlation between emotional and social intelligence and leadership, meaning that at least 64% of effective leadership is based on emotional and social intelligence (Bar-on, 2003).

Bar-on's research not only indicated that emotionally and socially intelligent people's performance may increase but also that it is possible to educate people to act more emotionally and socially intelligently (Stein & Book, 2001; Bar-on, 2003).

2.4.5 Emotional Intelligence defined

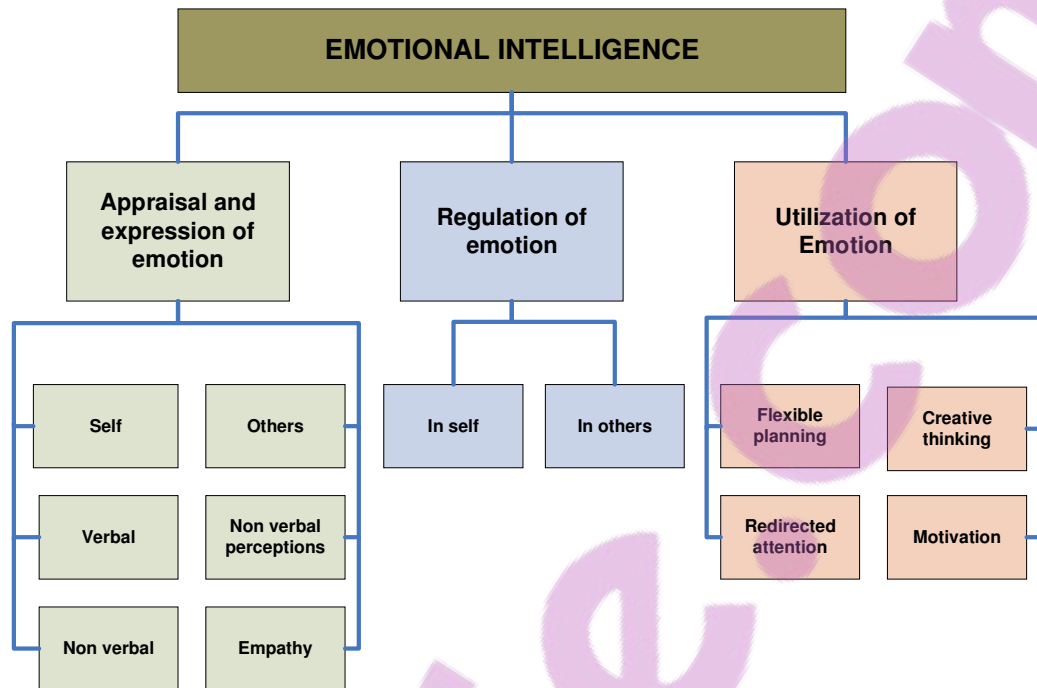
The concept of emotional intelligence as defined by Salovey and Mayer (1990) has its roots in social intelligence. A theme that is consistent throughout all of these different theories is that social intelligence is an ability to understand people (Fatt, 2000; Gardner, 1985; Sternberg, 1986). The concept of emotional intelligence will be discussed from three different viewpoints in an effort to try and highlight what areas of agreement there are between the three.

2.5 Salovey and Mayer

Salovey and Mayer (1990) define emotional intelligence as the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions. The model in Figure 2.1 depicts this very well.

According to Salovey and Mayer (1990), there are mental processes involving emotional information. Although these processes are common to all people, there are important individual differences. The importance is twofold: firstly because it is commonly acknowledged that people differ in their capacity to understand and express emotions, and secondly that these differences may be rooted in skills that can be learned and which could contribute to the individual's mental health (Salovey & Mayer, 1990). The model of Salovey and Mayer (1990) is briefly described in its different individual components.

Figure 2. 1: Conceptualization of Emotional Intelligence



Adapted from: Salovey and Mayer, (1990)

2.5.1 Appraisal and Expression

Emotion in the Self

The appraisal and expression processes mean that emotion rich information enters the perceptual system of the individual. Emotional intelligence processes the feelings for an accurate appraisal and is then expressed in a particular behavioural manner.

This behaviour may be expressed in a verbal manner through language. The ability to appraise and express one's own emotion would be to accurately do introspection of oneself and coherently express it verbally. This ability can, according to Salovey and Mayer (1990), be taught and therefore enhanced.

The emotion can also be expressed in a non-verbal fashion and the importance thereof is often overlooked (Salovey & Mayer, 1990). This occurs through facial expression, the absence of words and signals through body posture.

Salovey and Mayer (1990) made it clear that the more accurate the appraisal is, the quicker the response to own emotion and the better the expression of those emotions to others will be.

Emotions in others

Interaction between people is much smoother whenever emotions are accurately perceived in themselves as well as those around them (Salovey & Mayer, 1990). Empathy is the ability to understand other people's feelings and re-experience them. People with a high level of emotional intelligence would have a strong empathic ability. People with a high degree of empathy also have other abilities to enhance empathy, like to understand another person's viewpoint and to acknowledge it. These abilities enable individuals to accurately gauge the emotional responses in others and to then choose socially adaptive behaviour in response (Salovey & Mayer, 1990).

Regulation of Emotion

In regulating one's own emotions and to a certain extent regulate or perhaps influence the emotions of others, Salovey and Mayer (1990) believe that it is easier to explain this concept with a discussion on moods rather than emotions. Moods are usually less intense than emotions, but normally last longer.

Salovey and Mayer (1990) argue that moods occur automatically and are thus indirectly perceived. A person may, however, consciously prefer to experience it again, like enjoyment when dancing and then decide to do it again in order to experience a pleasant mood.

One can also choose the company of positive and successful people. In seeking information of positive views and behaviour that enhances these results, the negative moods are terminated. Apart from the decision to accept a positive thought, one may also decide to do so by regulating the mood through behaviour, for example by exercising when feeling depressed (Salovey & Mayer, 1990).

Moods may be modified directly too (Salovey & Mayer, 1990). A person will generally remember positive and pleasant memories rather than negative experiences. It is therefore assumed that individuals attempt to maximize the pleasurable memories and use consciously controlled mechanisms to enhance the experiences (Salovey & Mayer, 1990). It is also true that people seek emotional experiences that are not always pleasant, like watching a sad movie or a tragic play. Salovey and Mayer (1990) are of the opinion that this behaviour is perhaps rooted in the contrast that "one must experience sorrow, at least temporarily, in order to feel joy" (Salovey & Mayer, 1990:197).

Regulation of Emotion in Others

Salovey and Mayer (1990) believe it is possible to regulate and alter the emotional reaction of others. They use an example of the impression that a well versed candidate, on time and dressed to create a favourable impression, leave on a recruitment committee. They describe skilled behaviour aimed at deliberately influencing the opinion of others. Salovey and Mayer (1990) describe how emotionally intelligent people may “enhance their own and others’ moods and even manage emotions so as to motivate others charismatically towards a worthwhile end” (Salovey & Mayer, 1990:198). Of course, this may also be true of a negative influence on someone for an antisocial goal.

After the first definition of emotional intelligence of Salovey and Mayer (1990), research on the concept grew in popularity. Mayer, Salovey and Caruso (2000) then revisited the original construct of Salovey and Mayer. Their new definition was formally defined as “emotional intelligence as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others” (Mayer, Salovey & Caruso, 2000:396). The major development on the first version of Salovey and Mayer was to indicate how and in what sense emotions convey information, “and by adding explicit discussion of the fact that a central portion of emotional intelligence involves reasoning with or understanding of emotions” (Mayer, Salovey & Caruso, 2000:400). The model is also more specific in that a large part of emotional intelligence depends on reasoning with or understanding emotions. The role of emotional effectiveness in social adaptation is also more prominent (Mayer *et al.* 2000b). Through the new definition, Mayer, Salovey and Caruso (2000) view the added value to the abilities as:

Perception and appraisal of emotion is to identify and express emotions in one’s feelings and thoughts and also emotion in other people, artwork and language, etc.;

To assimilate emotional experience in the mind, including weighing emotions up against one another, and assimilating emotions with other sensations like smell or sound;

To understand and reason about emotions. Specific emotions like anger, happiness and fear are governed by emotional rules and would therefore, if known and understood, be recognizable when they appear. Emotional intelligence then involves the ability to recognize emotions, to know how they would influence behaviour and to reason about them;

The fourth, and according to Mayer, Salovey and Caruso (2000) the highest level of emotional intelligence, is the ability to manage and regulate emotions in oneself and in others. This

ability enables one to monitor and regulate emotions reflectively in order to promote emotional and intellectual growth.

With reference to their changed model, Mayer, Salovey and Caruso (2000a) warn against the popular use of concepts without the responsibility to classify and to use concepts in the context and coherent relation in which they were developed. Mayer *et al.*, (2000a) find it difficult to relate emotional intelligence equal to personality. Mayer *et al.* (2000a) refer to the use of concepts like motivation, emotion, cognition and consciousness as subdimensions when emotional intelligence is discussed, but according to Mayer *et al.* (2000a), these terms are used in personality psychology as “four basic processes that make up personality’s near biological foundation” (Mayer *et al.*, 2000a:98). These processes cannot directly be linked to some kind of intelligence (emotional intelligence in this case). Mayer *et al.* (2000a) believe that intelligence could be described as a cognitive problem solving ability and the four personality processes cannot be linked to problem solving abilities.

An interesting addition to the new version of their model is the prediction of several outcomes of emotional intelligence in people. According to Mayer, Salovey and Caruso (2000), emotionally intelligent people have more likely grown up in emotionally sensitive and socially adaptive households. They are probably non-defensive because emotions are understood, are managed and are influenced. Such individuals will also choose strong emotional role models because they can recognize and appreciate the ability in these people. The model can also predict that emotionally intelligent people can communicate and discuss feelings better and can do social problem solving (Mayer, Salovey & Caruso, 2000).

2.6 Bar-on

Intelligence (IQ) has long been measured by standardized intelligence tests like the Stanford-Binet Intelligence Test and the Wechsler Intelligence Scale for Children. Over the past decades, these tests have proven to be effective measures to predict scholastic performance, but weak when used to predict performance in the workplace (Bar-on, 2003).

In order to try and solve this problem, Bar-on developed the Emotional Quotient Inventory (EQ-i) measure. His theory of emotional and social intelligence supports this measure and guides research on emotionally and socially competent behaviour. On this theory a construct was built that can, amongst other things, predict performance in the workplace (Bar-on, 2000). Bar-on’s theory is based on the premise that personal traits and abilities, which should be considered with emotional and social intelligence in mind, influence our ability to cope with social and other environmental demands (Emmerling & Goleman, 2003). The ability to deal with strong emotions and control one’s impulses and, secondly, the ability to adapt to change and to solve problems, do not appear so strongly in the other two EI-theories of Mayer *et al.*, and of Goleman.

Bar-on describes the intelligence component of the emotional intelligence construct as a collection of knowledge or an aggregate of abilities, competencies and skills used to cope with life effectively (Sipsma, 2000). Bar-on prefers to define the construct of emotional intelligence as emotional and social intelligence. He believes to be emotionally and socially intelligent is to “effectively understand and express ourselves, to understand and relate well to others and to successfully cope with daily demands and pressures” (Bar-on, 2003:4).

Bar-on (2003) emphasizes the need to be optimistic and positive and to be able to control one’s emotions. He claims that his emotional and social intelligence model predicts the potential to succeed in life rather than the success as output. He also believes that the normal Intelligence Quotient (IQ) does not alone measure intelligence, but that together with his Emotional Quotient Inventory, a more balanced view of intelligence is perceived (Bar-on, 2003; Mayer, Salovey & Caruso, 2000).

Bar-on’s self-report measure of emotional and social intelligence, the EQ-I, is recognized as a significant measure for emotional intelligence next to that of Mayer and Salovey. This measure was developed over 17 years and normed on 3 831 adults and was the first emotional intelligence measure to be published by a psychological test publisher (Bar-on, 2003).

The measure consists of five components and 15 content components of emotional intelligence. The following model was adapted from an illustration of the different components of his emotional intelligence measure, namely the EQ-I scale, and depicts Bar-on’s emotional and social intelligence model:

Figure 2.2: Bar-on's emotional and social intelligence model

MAIN COMPONENT	SUB COMPONENT	COMPETENCY
Intra-personal	Self-regard	To accurately perceive, understand and accept oneself
	Emotional self-awareness	To be aware of and understand one's own emotions
	Assertiveness	To effectively and constructively express one's emotions and oneself.
	Independence	To be self-reliant and free of emotional dependency on others
	Self-actualization	To strive to achieve personal goals and actualise one's potential.
Inter-personal	Empathy	To be aware of and understand how others feel
	Social responsibility	To identify with one's social group and cooperate with others
	Inter-personal relationship	To establish mutual satisfying relationships and relate well with others
Stress management	Stress tolerance	To effectively and constructively manage emotions
	Self-regard	To effectively and constructively control emotions
Adaptability	Reality-testing	To objectively validate one's feelings and thinking with external reality
	Flexibility	To adapt and adjust one's feelings and thinking to new situations
	Problem-solving	To effectively solve problems of a personal and interpersonal nature
General mood	Optimism	To be positive and look at the brighter side of life
	Happiness	To feel content with oneself, others and life in general

Adapted from Bar-on (2003)

Bar-on (2003) has collected empirical evidence through several studies that there is significant correlation between emotional intelligence and occupational performance. Two major studies Baron referred to were the United States Air Force Recruiters performance study and the Center for Creative Leadership Study comparing emotional intelligence scores of executive members with their successful leadership rate. Both results indicated that the correlation between emotional intelligence scores (measured with EQ-I) and performance in the workplace was significant (Bar-on, 2003). Bar-on (2003) further refers to the impact of emotional and social intelligence on physical wellness. He quotes Krivoy's study (Krivoy *et al.* in Bar-on, 2003:8) where she compared adolescent cancer survivors with a group of cancer patients with no previous cancer history. The results indicated a connection between emotional intelligence and physical wellness with aspects like assertiveness, emotional independence, stress tolerance, optimism and self-actualization as success indicators (Bar-on, 2003). Bar-on lastly refers to empirical evidence that emotional intelligence competencies in the workplace can be enhanced when he refers to the study of Sjölund at the Swedish Skanska construction company. After a workshop on emotional intelligence skill training, significant increases in the participants' emotional intelligence scores were observed (Bar-on, 2003). According to Bar-on (2003), emotional and social intelligence can be used as a predictor of performance in the workplace. Furthermore, it can be used to understand others

more effectively and understand and express us better and use these skills to successfully cope with daily pressures of life (Bar-on, 2003).

2.7 Goleman

There was growing concern among social science researchers about how little traditional intelligence tests measured ability to be successful in life. Cherniss (2000) refers to enough research results to indicate that IQ is not a good predictor of job performance. This was the cornerstone for Goleman's first book, *Emotional Intelligence* (1995). He was convinced that social and emotional abilities play an important role in personal success in the workplace and that it could be used to predict the potential to be successful in a work environment (Goleman, 1995). Goleman's claim that emotional intelligence could predict success in the workplace resulted in criticism, of which Mayer, Salovey and Caruso (2000) can be specifically noted.

Goleman's model is based on emotional competencies and he believes that the level of emotional intelligence determines the potential to be emotionally competent. Goleman defined five sets of competencies, each consisting of different skills. Figure 2.3 illustrates this initial model:

Figure 2.3: Goleman's Emotional Competence Framework

EMOTIONAL COMPETENCE FRAMEWORK	
PERSONAL COMPETENCE	
COMPETENCE	SKILL
SELF- AWARENESS	Emotional awareness: Know which emotions they are feeling
	Accurate Self-Assessment: Aware of one's strengths and weaknesses
	Self-Confidence: Present themselves with "presence".
SELF-REGULATION	Self-Control: Stay composed and positive under pressure.
	Trustworthiness: Act ethically
	Conscientiousness: Meet their objectives

	Adaptability: Are flexible in how they see events.
	Innovativeness: Generate new ideas
SELF-MOTIVATION	Achievement Drive: Set challenging goals and take calculated risks. Learn how to improve their performance.
	Commitment: Readily make personal or group sacrifices.
	Initiative: Pursue goals beyond what is required of them.
	Optimism: Operate from hope of success rather than fear.
SOCIAL COMPETENCE	
SOCIAL AWARENESS	Empathy: Listen well. Show sensitivity and understand others' perspectives.
	Service Orientated: Understand customers' needs and match them to service.
	Developing Others: Acknowledge and reward people's strengths and accomplishments
	Leveraging Diversity: Respect and relate well to people of diverse backgrounds.
	Political Awareness: Accurately read power relationships.
SOCIAL SKILLS	Influence: Are skilled at persuasion.
	Communication: Listen well and seek mutual understanding.
	Leadership: Articulate enthusiasm for a shared vision.
	Change Catalyst: Recognize the need for change and remove barriers.
	Conflict Management: Orchestrate win-win solutions.
	Building Bonds: Seek out relationships that are mutually beneficial.

	Collaboration and Cooperation: Balance a focus on task with attention to relationships.
	Team Capabilities: Create group synergy in pursuing collective goals.

Adapted from: Goleman, (1998)

Emmerling and Goleman (2003) believe that emotional competencies refer to the level of specific skills and abilities that individuals have and which strengthen their emotional intelligence and allow them greater effectiveness in the workplace. Goleman therefore argues that emotional intelligence is not the factor on which any prediction of success is built. An individual's level of emotional intelligence will indicate the extent to which he/she will be able to master the skills and abilities needed for a given emotional competence (Emmerling & Goleman, 2003).

Emotional influence is possible according to Goleman (1998). He believes that the skill to regulate another person's emotions enables one also to influence such a person's behaviour. This influence, according to Goleman (1998), is nothing new and occurs naturally in everyday personal interaction. Emotions are action triggers and are indicators on which one focuses one's energy and attention at a specific moment. Goleman (1998) maintains that people who are skilled in influencing other's emotions effectively, usually anticipate the emotional reaction their emotional intervention will have and lead their audience to the desired emotional state. People who are not skilled to understand other's emotional signals will be unable to react with empathy and will be unable to influence the emotions of others (Goleman, 1998).

Goleman states that persuasion is built on a shared perception, for example decision-making in a team on what should be done next, or how a particular problem should be solved. This is a direct result of influencing other people's emotions that would inevitably influence their behaviour. The skill to convince people is, according to Goleman (1998), offering them what is appealing in the given situation. This often requires complex strategies to appeal to their emotional state in order to reach consensus.

Goleman's revised Framework of Emotional Competences offers strong elements of interpersonal influence. With reference to the social competence part of the model, Goleman defines two groups of competencies, namely Social Awareness and Relationship Management. In the Social Awareness group, empathy and organizational awareness can be highlighted as competencies to facilitate greater interpersonal relationships in a team.

To have empathy with someone would imply that you are aware and understand the other's emotions and concerns (Goleman, 2001). Goleman (2001) believes that this is only possible if you are aware of and understand your own emotions. Goleman (2001) refers to examples of

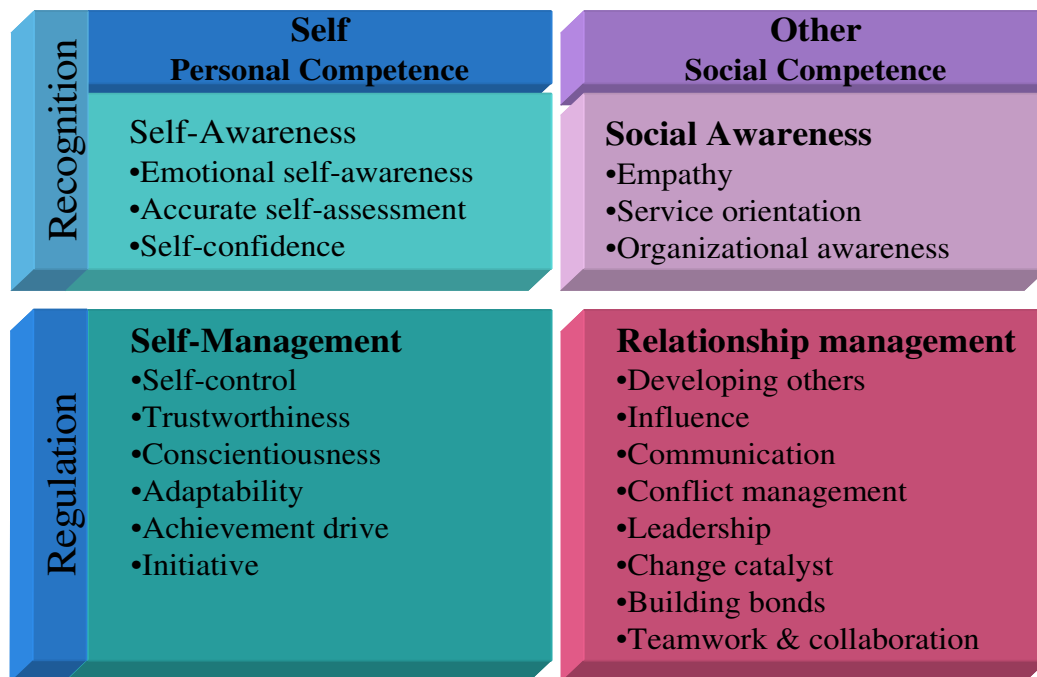
successful doctors based on their empathy competence in comparison to their less successful colleagues who show less empathy during consultations and who are considered as less successful owing to their apparent inability to effectively understand the emotions of their patients.

Individuals with an organizational awareness ability can understand the emotional and political signs within a group. This awareness is on a higher organizational level and not only limited to an interpersonal one-on-one relationship (Goleman, 2001). According to Goleman (2001), successful individuals in organizations share this ability. These individuals can easily dissociate themselves from their own biases, and are able to respond to others' emotions more effectively (Goleman, 2001).

The Relationship Management group of competencies has a number of competencies aimed at influencing behaviour within a team.

Goleman's revised model can be depicted as follows:

Figure 2.4: Goleman's revised Framework of Emotional Intelligence Competencies



Adapted from: Emmerling & Goleman (2003).

In the model above, the four domains form the foundation for the 20 different competencies of learned abilities, but these competencies depend on the strength of the relevant domain they

are accommodated in (Emmerling & Goleman, 2003). Influencing team members to attune to a certain emotion would therefore need a strong relation management domain.

Goleman, Boyatzis & McKee (2002) theorizes that a team with a high emotional intelligence level would have a high work-group cohesion. It could also be expected that an emotionally intelligent team would be more goal-focused than a team with a low emotional intelligence level (Jordan et al., 2002). Druskat (2001) argues that a team with high emotional intelligence would understand that in bringing the team members' emotions into the open for the rest of the team to recognize could strengthen the interrelationships of the team members. This ability of a team to manage its emotions could cultivate a climate of trust, cooperation and effectiveness (Abraham, 1999; Druskat, 2001; Goleman, Boyatzis & McKee, 2002).

2.8 Comparing the three models

The following summarizes the core differences between the three models:

Figure 2.5: Three competing models all labelled “Emotional Intelligence”

Mayer & Salovey (1997)	Bar-On (1997)	Goleman (1995)
Overall Definition	Overall Definition	Overall Definition
“Emotional intelligence is the set of abilities that account for how people’s emotion perception and understanding vary in their accuracy. More formally, we define emotional intelligence as the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others.” (After Mayer & Salovey, 1997)	“Emotional intelligence is...an array of non-cognitive capabilities, competencies, and skills that influence one’s ability to succeed in coping with environmental demands and pressures.” (Bar-On, 1997, p.14)	“The abilities called here emotional intelligence, which induce self-control, zeal and persistence, and the ability to motivate oneself.” (Goleman, 1995), “There is an old-fashioned word for the body of skills that emotional intelligence represents: <i>character</i> ” (Goleman, 1995, p.28)
Major areas of skills and specific examples	Major areas of skills and specific examples	Major areas of skills and specific examples
Perception and Expression of Emotion Identifying and expressing emotions in one’s physical	Intrapersonal Skills: Emotional self-awareness Assertiveness Self-regard	Knowing One’s Emotions Recognising a feeling as it happens Monitoring feelings from

<p>states, feelings and thoughts. Identifying and expressing emotions in other people, artwork, language, etc.</p> <p>Assimilating Emotion in Thought Emotions prioritize thinking in productive ways Emotions generated as aids to judgement and memory</p> <p>Understanding and Analysing Emotion Ability to label emotions, including complex emotions and simultaneous feelings Ability to understand relationships associated with shifts of emotion</p> <p>Reflective Regulation of Emotion Ability to stay open to feelings Ability to monitor and regulate emotions, reflectivity to promote emotional and intellectual growth (after Mayer & Salovey, 1997, p.11)</p>	<p>Self-actualisation Independence</p> <p>Interpersonal Skills Interpersonal relationships Social responsibility Empathy</p> <p>Adaptability Scales Problem solving Reality testing Flexibility</p> <p>Stress-Management Scales Stress tolerance Impulse control</p> <p>General Mood Happiness Optimism</p>	<p>moment to moment</p> <p>Management Emotions Handling feelings so they are appropriate Ability to soothe oneself Ability to shake off rampant anxiety, gloom, or irritability</p> <p>Motivating Oneself Marshalling emotions in the service of a goal Delaying gratification and stifling impulsiveness Being able to get into the 'flow' state</p> <p>Recognising Emotions in Others Empathic awareness Attunement to what others need or want</p> <p>Handling Relationships Skill in managing emotions in others Interacting smoothly with others</p>
Model Type	Model Type	Model Type
Ability	Mixed	Mixed

Adapted from: Mayer, Salovey & Caruso (2000)

Mayer, Salovey and Caruso (2000) refer to their own model as an ability model and to those of Bar-on and Goleman as mixed models. Mayer, Salovey and Caruso (2000) describe their revised model as their contribution to distinguish between intelligence as conceptualized in their model and human effectiveness as the focus of the other two models. Mayer and Salovey (1997) developed their emotional intelligence model in an effort to explain individual

differences in the ability to recognize, understand, express, control and reflect emotion and emotional information. Mayer and Salovey (1997) cast their model within a framework of intelligence, based on mental abilities and cognitive processes and could therefore define their model as an ability model. This aspect is further confirmed by the moderate correlation that the measure of Mayer and Salovey's model of emotional intelligence (MEIS) has with traditional measures of intelligence (Emmerling & Goleman, 2003).

Mayer and Salovey (1997) argue that Bar-on explicitly included non-ability traits such as personal independence, self-regard and mood in the emotional intelligence concept, and hence the definition of a mixed model. Bar-on's model defines emotional intelligence as an array of traits, non-cognitive abilities, and competencies that influence one's ability to cope with social environmental demands (Bar-on, 1997; Emmerling & Goleman, 2003). Although this model also reflects on emotional intelligence it has a different focus than the model of Mayer and Salovey (1997).

Mayer and Salovey (1997) also label Goleman's model as a mixed model for his inclusion of personality components like self-control, zeal, persistence and the ability to motivate oneself. Goleman's model differs from the previously mentioned two models. Mayer and Salovey's model was developed to establish a theory on a new form of intelligence. Bar-on's model was developed within the educational environment to explain differences in emotional behaviour of seemingly equal individuals and to develop a measure of social and emotional competencies. In contrast to the above-mentioned two models, Goleman's model was developed in the workplace in an effort to explain why equal behaviour has varied success. Goleman defines his model as a framework within which an individual's potential to master skills of self-awareness, self-management, social awareness and relationship management, can be reflected (Goleman, 1995; Emmerling & Goleman, 2003). This identified potential may be used to predict an individual's success in the workplace (Emmerling & Goleman, 2003).

Although these are three different theories with different focal points, all three share a common desire to understand, recognize and control emotions in ourselves and in others (Mayer & Salovey, 1990; Goleman, 1995; Mayer, Bar-on, 1997; Salovey & Caruso, 2000; Emmerling & Goleman 2003). All three are complementary towards each other in an effort to understand how individuals manage and influence emotions.

2.9 Assessment

The measure that Bar-on developed, the "Bar-on Emotional Quotient Inventory" or EQ-i, was for long the only properly validated assessment of emotional intelligence (Mayer, Salovey & Caruso, 2000). The EQ-i is a 133-item self-report measure, which consists of 15 distinct scales based on Bar-on's own experience and a thorough literature review (Schutte *et al.*,

1997). This measure proposes to reflect the potential for success in life (Hemmati, Mills & Kroner, 2004). Apart from measuring an individual's ability to recognize, use and regulate emotion in oneself as well as in others, Bar-on included personality aspects of general mood and happiness.

Schutte *et al.* (1997) developed another measure based on the original model of Salovey and Mayer (1990). According to Schutte *et al.*, they decided on Salovey and Mayer's model as it is a "theoretically cohesive and comprehensive model" (Schutte *et al.*, 1997:169). They believe that although the revised model of Mayer and Salovey (1997) is an excellent process-orientated model, the original one lends itself better to conceptualizing the various dimensions of an individual's current state of emotional development (Schutte *et al.*, 1997). It was for this reason that this measure was chosen as the EI measure for this research.

2.10 Summary

The problem statement in Chapter 1 anticipates that this research will indicate whether team members' interaction with each other towards common goals will influence their perception about the climate of innovation they work in. This aspect is partly illustrated by the emotional intelligence component of the Conceptual research Model (Figure 1.1: Chapter 1). It is illustrated in the model that EI potentially influences individual personal traits (goal orientation), team member interaction processes (TMX) as well as the shared perception of the team (Team Climate).

From the literature study, the following aspects can be listed in support of this proposed influence:

There is consensus that social intelligence, as ground theory from which emotional intelligence was developed, refers to the ability to understand people (Gardner, 1985; Fatt, 2000; Sternberg, 1986).

Emotional intelligence refers to the ability to monitor own and others' feelings and emotions, the ability to discriminate among them and to use this information to guide one's thinking and actions.

Empathy is an ability to understand another's emotions and to re-experience them oneself (Salovey & Mayer, 1990).

Interaction between people is much smoother whenever emotions are accurately perceived in themselves as well as in other people around them (Salovey & Mayer, 1990).

It is possible to regulate and even alter the emotional reaction of others (Salovey & Mayer, 1990; Mayer, Salovey & Caruso, 2000).

In his Emotional Competence Framework, Goleman (1998) included the social skill of influence. Goleman believes that people with this influencing skill are good at persuading others to change behaviour and perception.

From the above-mentioned aspects it is clear that emotional intelligence may be used to refer to understanding of emotion in oneself and in others, and to regulate and influence others' emotion. According to the selected literature, emotional intelligence indeed refers to an ability to influence other team members' perceptions through emotional interactions.

2.11 Exchange Processes in Teams

2.11.1 Introduction

Studies on how to improve organizational performance included the work team approach and this has been researched extensively. Throughout most recent work group research results, a basic assumption was made that group activities influence individual behaviour and attitudes (Mossholder & Bedeian, 1983; Saavedra & Van Dyne 1999; Seers, Petty & Cashman, 1995). Mossholder & Bedeian (1983) believe that this influence occurs through interaction between the group members on an individual exchange basis and indirectly through the powerful effects of the group on its members as such.

Teams are formed with goal accomplishment in mind. Another purpose is to preserve the group harmony. Saavedra and Van Dyne (1999) agree with this principle and argue that work teams have three purposes to accomplish, namely:

- To satisfy the organization's drive on output;
- To develop the team members' relationships with each other; and
- To look after the team members' personal interests.

Saavedra & Van Dyne (1999) believe that team members evaluate the team's goal achievement in relation to their personal costs and benefits and benefits to the team as such and that this is achieved through social exchange networks in the team.

Wallace & Wolf (1995) suggested that these social exchanges do not occur unless the individual perceives the exchange to be beneficial to him or her. This interaction further requires trust, which takes time to be established. Typically, a relationship would start with smaller, no-risk exchanges. Over time, this investment develops into a relationship that is built

on a trustworthy basis, which is then ready to support major exchange transactions (Cole, *et al.*, 2002). Saavedra and Van Dyne (1999) argue that the individual's investment in the team is a combination of loyalty towards the team's output goals, mutual caring to ensure internal relationship develop and commitment to the team as an indication of the individual's personal interest. All of this influences the team's overall performance.

The description of exchanges that take place inside a team is based on the Social Exchange Theory and is the foundation on which the team member exchange construct (TMX) is built.

2.11.2 Social Exchange

In an economic context, the concept of exchange means that an actor (individual) deals or makes some kind of exchange within a market (Blau, 1987). In contrast to this concept, the social exchange theory is based on an anticipated prolonged exchange relationship between two actors. It specifically refers to a dyadic relationship. According to this theory, an exchange relationship is built on a principle of two individuals exchanging resources, information, support etc. and anticipating some kind of reward in future (Blau, 1987).

Huston & Burgess (1979) believe that social exchange refers to the interpersonal transaction between two individuals and this transaction is usually driven by self-interest or interdependence. It is normally a cognitive process where the two individuals make exchange decisions to benefit both (Lawler & Thye, 1999). If both actors find the exchange relationship beneficial, the exchange will re-occur over time (Molm, Peterson & Takhashi, 2001). Social exchange research efforts focus almost entirely on the dyadic relationship. Saavedra and Van Dyne (1999), however, is of the opinion that the social exchange research results on dyadic relationships may also be extended to larger social units as both entities have an influence on each other. Mossholder & Bedeian (1983) believe that it is not unusual to make inferences from data collected at an individual level of analysis to indicate the effects on an independent group level construct.

Therefore, through an exchange network between individuals on various aspects, attitudes, perceptions and behaviour are influenced in a team.

2.11.3 Interdependence

Social exchange focuses the attention directly on the social process of give-and-take in peoples' relations. It is recognized that the exchange behaviour is psychologically motivated, but exchange theory does not try to examine these motives. It rather tries to understand the exchange process. The social exchange theory describes the transaction process in which "each response is dependent on the other's prior action and is simultaneously the stimulus

evoking the other's further reaction" (Blau, 1987:85). The anticipated repeated reciprocity is implicit in social exchange (Blau, 1987; Cole *et al.*, 2002).

Blau (1987) argues that apart from the repeated reciprocity, the power balance in the dyadic exchange relation is further an important aspect of the social exchange theory. To explain this, Blau proposes that actor A tries to exchange from actor B and the exchange then fails. If no other alternative exchange option is available to A, the lack of alternatives brings a power imbalance and therefore a dependence and subordination in their interpersonal relation. This dependence will differ in degree, depending on the value that the one actor places on the resources in the other actor's hold or by the availability from alternative sources. This implies that the power advantage lies with the actor with the least dependence (Blau, 1987). According to Blau (1987), there are mechanisms as remedies against a power-unbalancing situation. These mechanisms are:

Withdrawal from the relation;

Adding exchange relationships to the existing network or forming alternative relations;

Altering the value of the resource on offering to be exchanged; and lastly

Coalition formation against those that hold the power (Blau, 1987).

Saavedra and Van Dyne (1999) refer to a systematic exchange process where two individuals evaluate the exchange interaction between them over time to determine if further personal investment in the exchange relationship is warranted. This process is used to evaluate the personal costs and rewards of the exchange. If the evaluation is positive, the relationship is continued.

Saavedra and Van Dyne (1999) believe it can be assumed that the exchanges are made for the highest expected rewards against the lowest expected cost. Successful resource exchange increases the interdependence and commitment and the greater the number of resources and exchanges made, the greater the interdependence among group members will be (Saavedra & Van Dyne, 1999). The authors point out that although the relationship is perceived as positive, it does not imply an absence of costs. If a relationship is considered to offer enough benefits, the role players are willing to tolerate the accompanying costs.

The role players in the relationship offer each other certain exchange currencies. The way in which the individual values this currency will depend on the existing relationship and the specific needs of the individuals in question (Cole, *et al.*, 1995; Huston & Burgess, 1979).

The social exchange theory is based on the principle that individuals evaluate opportunities to exchange and expect reciprocal exchanges that allow them to maximise personal rewards and minimize personal costs.

According to Saavedra and Van Dyne (1999), this principle is also present in work groups, although social exchange research mainly focused on dyadic relationships. The authors believe that as in dyads, reciprocal interdependence as well as costs and rewards indicate a work group's exchange relationship (Saavedra & Van Dyne, 1999). They further believe that exchange interdependence encourage group members to contribute to the purpose of the team like developing group members' relationship with each other and to help satisfy individual team members' personal interests, without putting the cost implication upfront in the exchange process. These contributions reflect the level of commitment and emotional investment in a group's welfare (Saavedra & Van Dyne, 1999). The authors view emotional investment as "composite of group loyalty, mutual caring, and commitment to the group as a whole" (Saavedra & Van Dyne, 1999:111).

To build relationships, group members must make contributions to each other's welfare. This relationship may enhance emotional support such as loyalty, trust, intimacy and fun (Saavedra & Van Dyne, 1999). The authors also believe that if team members start relying on the group for desired outcomes, exchange interdependences and support for each other are enhanced.

2.11.4 Team member exchange

Team member exchange was first used as construct by Seers (1989) and was subsequently further researched particularly by Cole *et al.* (2002). In context, the construct was developed as predictor of job satisfaction, satisfaction with peers, commitment and job turnover (Cole *et al.*, 2002). It is the opinion of Seers, Petty and Cashman (1995) that team member exchange is also predictive of positive work behaviour and attitudes towards work related issues.

Team member exchange can be described as an individual team member's evaluative perception of his exchange and interaction relationship with his fellow team members as well as his perception of the anticipated reciprocal exchange of the team (Cole *et al.*, 2002; Seers, 1989; Seers *et al.*, 1995). Seers (1989) specifically introduced the concept to describe an individual's role influence within a team. He also referred to the exchanges that occur within a team, based on the different individual roles performed in the team context (Witt, Hochwater, Hilton, Hillman, & Chan, 1999).

According to Cole, Schaninger and Harris (2002), social exchange research has extensively focused on employee-centered relationships in the workplace. They believe three exchange relationships in the workplace are of importance. Leader member exchange (LMX) is the most popular research topic of the three. Organization member exchange (OMX) is the second and is often identified as perceived organizational support (POS). Apart from the work of Seers

(1998) as well as Cole, *et al.* (2002), the last exchange construct, team member exchange (TMX), has received very little if any research attention (Sherony & Green, 2002).

2.11.5 Within-Team Agreement

Mason (2006) refers to numerous research results that indicate if team members share perceptions of their team climate, they will communicate better which will positively influence their team performance (Mason, 2006: 234). This shared relationship between team members is balanced by the exchange of perceptions (of the abilities, skills and processes) in order to satisfy mutual interests within the team (Seers, Ford, Wilkerson & Moormann, 2001).

According to Ford & Seers (2006) teams increasingly rely on consensus building, and this within-agreement process influences individual behaviour and perceptions. These perceptions include perceptions of team members' well-being, their perception of the support they receive from within the organization and from within their own team, and of the factors that influence stress and dissatisfaction in the team.

The homogeneity or within-agreement of a team is socially influenced by the interaction of its members and implies the presence of other role players like leaders, or team members or members from other teams within the organization. Social influence may further be identified by the presence of group norms, the exchange of social information, and emotional contagion (Mason, 2006). Mason (2006) further describes social influencing as the sharing of information and influencing perceptions of the recipient's perception of the work environment and the evaluative meaning of events (Mason, 2006). The team member's behaviour and perception is influenced by the behavioural example of fellow team members and how the team accept or regulate the particular behaviour. Team norms also determine what emotions are appropriate in the workplace and what emotions are not tolerated (Mason, 2006). According to Mason (2006), emotional contagion means that individuals in the team react to cues that others in the team give to influence perceptions. This easily happens because of the interdependency and shared social environment associated by working in a team.

2.11.6 Workplace Social Exchange Network

Cole *et al.* (2002) developed the Workplace Social Exchange Network to illustrate the exchanges that typically take place inside an organisation. The framework is depicted below and indicates, apart from TMX as team member exchange, also OMX as organisation member exchange and LMX as leader member exchange. The latter two will not be discussed further. They are included in the framework to illustrate two other exchange relationships, which are together with TMX simultaneously part of the total exchange network in an organisation (Cole *et al.*, 2002).

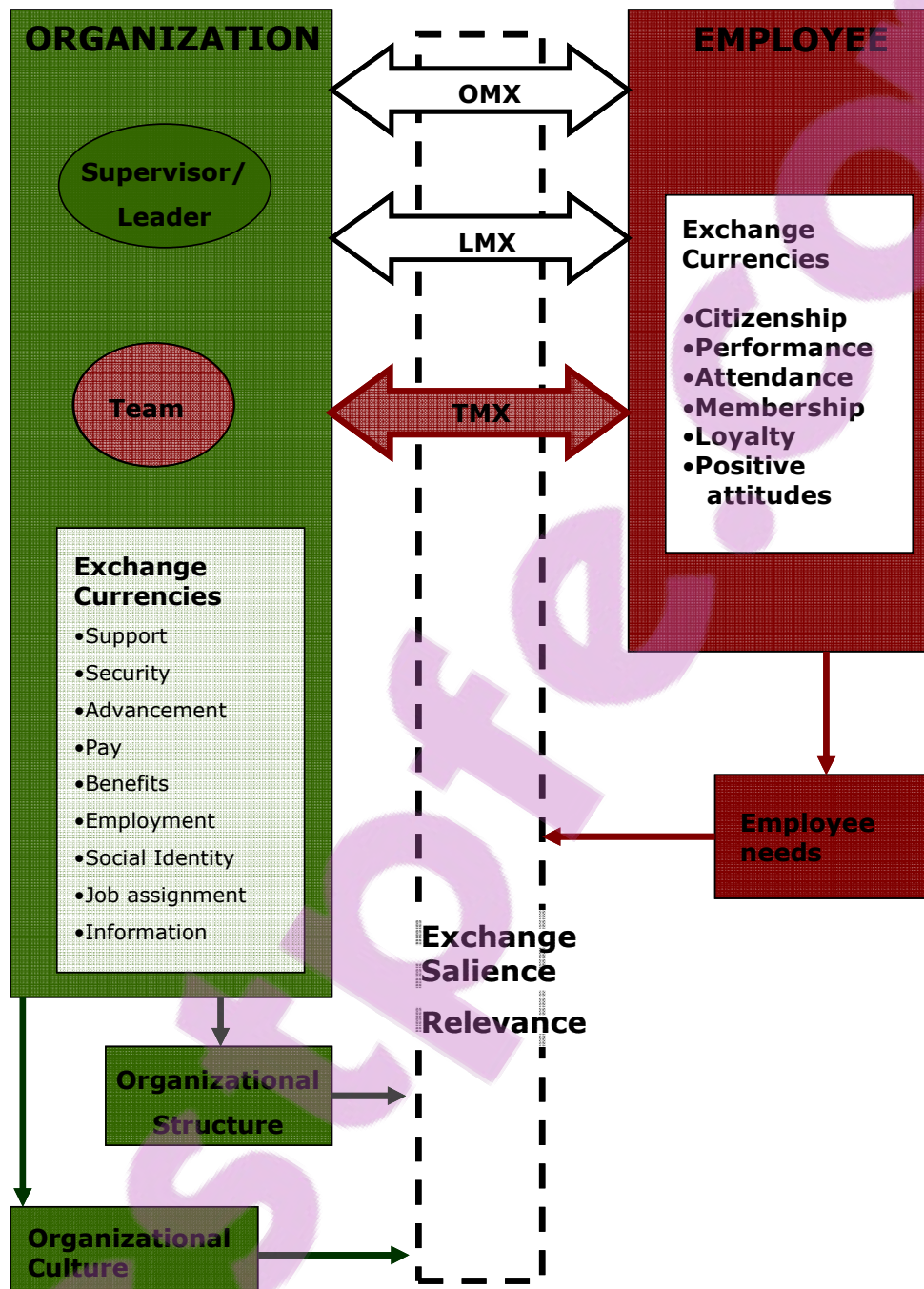
Based on the social exchange concept, exchanges within a work team occur through offerings of exchange currencies. The acceptance and reciprocation thereof will depend on the value it has for each individual recipient. Cole *et al.* (2002) categorize the different exchange currencies that an individual offers as either attitudinally or behaviourally motivated.

The core exchange principle of offering an exchange currency of value is very strong in any exchange relationship (Cole *et al.*, 2002; Molm *et al.*, 2001). The team would therefore expect positive attitudes and positive behaviour from team members as reciprocation in exchange for normal team currencies like support, security, pay, benefits, job assignments and information (Cole *et al.*, 2002). The attitudinal currencies that an individual can offer his fellow team members, according to Cole *et al.*, (2002), include amongst other things satisfaction, liking, commitment and trust. Seers (1989) adds to this list job satisfaction, internal work motivation, team cohesiveness and social exchanges between team members. Saavedra and Van Dyne (1999) believe that emotional investment would improve mutual caring in the team, which is also linked to loyalty and commitment. Witt *et al.* (1999), concur with Cole *et al.* that social exchange depends on trust that will develop whenever other contributions in the team are acknowledged as valuable.

Exchange currencies with behavioural outcome can be identified as lower absenteeism which is linked to commitment, lower job turnover which has association with job satisfaction and loyalty, and lastly innovation which has ties with job satisfaction and perceived support from the rest of the team (Cole *et al.*, 2002). It is this last apparent link that exchange within the team has with innovation and perceived support of the rest of the team that is important to this study.

Figure 2.6: Workplace Social Exchange Network Model

WORKPLACE SOCIAL EXCHANGE NETWORK MODEL



Adapted from: Cole *et al.* (2002).

Witt *et al.* (1999) refer to an important difference between leader member exchange (on which extensive research was done) and team member exchange. Apart from the obvious difference in focus, leader member exchange refers to dyadic relationships, whereas team member exchange has the whole team as unit of analysis.

Seers concludes that individuals with a high level of team member exchange make and receive more quality exchanges towards cooperation and goal achieving efforts in the relationship than individuals with a low level of team member exchange (Cole, *et al.*, 2002; Seers, *et al.*, 1995).

2.11.7 Summary

One objective of this study is to establish the following:

"Is the team member exchange process the facilitating agent to influence an individual's behaviour and attitudes inside a team?"

The literature reviewed indeed supplied a positive answer:

Mossholder & Bedeian (1983) believe that individual behaviour and attitude are influenced through group interaction.

Wallace & Wolf (1995) suggest that these social exchanges do not occur unless the individual perceives the exchange to be beneficial to him or her.

This interaction further requires trust, which is established with time, based on the perception that exchange contributions are valued and reciprocated (Saavedra & Van Dyne, 1999).

Exchange behaviour inside the team is an indication of the team member's loyalty towards the team's output goals, mutual caring of fellow team members and ensuring internal relationship develop and commitment to the team (Saavedra & Van Dyne, 1999).

Successful resource exchange increases the interdependence and commitment among group members (Cole *et al.*, 2002; Saavedra & Van Dyne, 1999; Witt *et al.*, 1999).

Exchange interdependences and support for each other are enhanced once the team members start relying on each other to reach team goals (Saavedra & Van Dyne, 1999; Lawler *et al.*, 2000).

The literature is therefore supportive of the suggestion that the team member exchange process can facilitate a change in attitude and behaviour.

2.12 Team Goal Orientation

2.12.1 Introduction

Goal orientation theory is a construct that was developed for educational psychology. The drive was to establish why children with apparently equal skills, abilities and circumstances indeed differ in their performance results. The same questions are asked about workers with seemingly equal abilities, skills and opportunities (Button, Mathieu & Zajac, 1996; Steele-Johnson Beauregard, Hoover & Schmidt, 2000).

Elaine Elliot and Carol Dweck (1988) describe this occurrence in children's behaviour as some of them displaying the "helpless" response when they experience failure in contrast to children almost ignoring failure and trying to find a solution and displaying an urge to improve their performance.

Don VandeWalle (1997) has researched this phenomenon in an organizational environment. He distinguishes between the two seemingly opposite categories of employees that some individuals experience setbacks and challenges as an indicator of their low ability and become pessimistic about trying to improve their performance. In contrast, there are employees who thrive on the adversity of a challenge and will try to overcome the setback with effort and innovation. Elliot and Dweck (1988) ascribe this difference in individual behaviour to a dispositional goal orientation when they are confronted in an achievement situation (Janssen & Van Yperen, 2004; VandeWalle, 1997).

Janssen & Van Yperen (2004) refer to the surprising fact that to date very little research has been done to find the answer on how this goal orientation disposition influences individuals' interpretation and responding behaviour to interpersonal exchanges in achievement situations. In essence, this is an element of the research objectives one referred to in Chapter 1. It was argued that it would be difficult for a team member to perceive a challenging work situation as conducive to a climate for innovation if his goal orientation predisposition induces hesitation to react, withdrawal from the challenge and accepting failure. One of the literature search focuses was to try and establish whether group interaction influences this disposition. Unfortunately, very little previous research results supported this question.

2.12.2 Definitions

From the initial construct work of Dweck (Dweck, 1986; Elliot & Dweck, 1988), two different goal orientations were conceptualized. These were:

A learning goal orientation, which emphasizes acquiring new skills, accepting criticism as positive feedback and developing competencies to master new and difficult situations; and

A performance goal orientation that seeks favourable feedback on perceived superior ability and avoid judgement on performance or possible failure when faced with a challenge.

2.12.3 Learning Goal Orientation

This construct was extensively research over the past 15 years (VandeWalle, 1997). Significant relationships between learning orientation and success were found. VandeWalle and Cummings (1997) also found strong links between learning orientation and feedback-seeking behaviour. Button, Mathieu and Zajac (1986) refer to this goal orientation as a framework through which any achievement is filtered. A learning orientation is therefore filtered through a framework of positiveness and denial of failure. Individuals with a learning goal orientation as predisposition strive to understand something new and will not accept failure as an indication of weak abilities. Such individuals would rather perceive setbacks as temporary. They would actively seek feedback to identify their abilities that are underdeveloped and learn new skills to improve their performance (Button et al., 1996; Dweck, 1986; Dweck, 1988; Elliot & VandeWalle, 1997; Tuckey, Bruwer & Williamson, 2002).

VandeWalle is of the opinion that individuals with a learning orientation seek opportunities to acquire new skills and learn to master new and difficult situations. The new challenge lying ahead is reflected through past experience, and development is made in order to grow as an individual (Mango & Steele-Johnson, 2001; VandeWalle & Cummings, 1997). Individuals with a learning orientation will take on challenging tasks in order to learn goal orientation and to stretch goal limits and do not mind making errors. They accept it as part of the learning process (Potosky & Ramakrishna, 2002; Seijts, Latham, Tasa & Latham, 2004). These individuals further believe that their abilities are receptive and that they can and should be developed (VandeWalle & Cummings, 1997). The authors lastly point out that learning orientated people will adopt an adaptive response pattern. They enjoy difficult tasks and simply persevere, implement problem solving thought processes, try innovative solutions and even enjoy the challenge.

2.12.4 Performance Goal Orientation

Individuals with a performance goal orientation show from vulnerability up to “helpless” response patterns in the face of an obstacle (Elliot & Dweck, 1988). When these individuals are confronted with failure, they attribute it to low abilities and may even withdraw from the activity (Button et al., 1996; Dweck, 1986). The authors also refer to individuals with this orientation as people who demonstrate their competence and ability via task performance and would avoid any negative judgement on their competence. Such people emphasize superior competence and seek favourable appraisal, but avoid negative feedback and experience it as a sign of failure (Tuckey, Bruwer & Willimason, 2002). Individuals with performance goal orientation perceive ability as fixed and an uncontrollable personal attribute and would rather concentrate on demonstrating abilities than improving them. All this is to protect their own ego, as performance feedback would increase vulnerability (Tuckey, Bruwer & Willimason, 2002; VandeWalle, 1997).

2.12.5 Performance-prove and performance-avoid

Since the research results on the initial two goal orientations became available, VanderWalle (1997) proposed a three-dimension rather than the known two-dimension construct. He believes that the performance orientation of the initial construct can be split into two subdimensions and proposes that the construct be defined as follows:

Learning goal orientation: a desire to develop the self by acquiring new skills, mastering new situations, and improving one's competence.

Prove (performance) goal orientation: the desire to prove one's competence and to gain favourable judgement about it.

Avoid (performance) goal orientation: the desire to avoid the disproving of one's competence and to avoid negative judgements about it.

VandeWalle (1997) refers to evidence to support such a subdivision of performance goal orientation (VandeWalle, Cron, & Slocum, 2001). Porath and Bateman (2006) refer to the three-dimension goal orientation and point out that only a few studies using students have investigated the “differentiated effects of the three dimensions of goal orientation on performance, and those studies yielded inconsistent results “ (Porath & Bateman, 2006:185).

2.12.6 Adaptive goal orientation

It has been convincingly established that goal orientation gives expression to a particular response. It influences how people interpret and respond to performance feedback and past performance appraisal and how they respond in subsequent performance situations (Button *et al.*, 1996; Elliot & Dweck 1988).

Button *et al.* (1996) are furthermore of the opinion that the two distinctive and separate dimensions, namely learning and performance goal orientation, describe goal orientation the best. Furthermore, they suggest that goal orientation has both situational and dispositional influencing aspects that can be distinguished from each other. This would mean that when “the situation cues are present, the individual will tend to adapt his or her dispositional orientations” accordingly (Button *et al.*, 1996: 40). It means that the dispositional orientation would prompt the individual to respond in the predisposed manner, but because the situational characteristic would prompt another response, the individual may adapt his response according to the situational cue (Button *et al.*, 1996).

It was proposed that it is possible for an individual to be high on learning and high on performance goal orientation at the same time. For example, it is possible to show a concern for high performance compared with others, and a desire to improve one's competence (Button *et al.*, 1996; Brett & VandeWalle, 1999; VandeWalle, Brown, Cron & Slocum, 1999). Brett & VandeWalle (1999) point out that it is still unknown how this perception would withstand a failure situation (Janssen & Van Yperen, 2004).

Button *et al.* (1996) are of the opinion that the two dimensions further have definite dispositional characteristics, meaning that individuals will behave according to their predisposed orientations. They further claim that goal orientation reflects strong situational aspects. If an individual with a predisposed performance goal orientation were faced by a difficult task, the tendency would be for him to avoid the task for fear of failure that would reflect inability (Button *et al.*, 1996; VandeWalle, Brown, Cron, & Slocum, 1999).

VandeWalle *et al.* (1999) state that goal orientation predisposes individuals to use or not to use self-regulation strategies. Self-regulation in their definition refers to the cognitive process that triggers motivation into action and behaviour. This means that someone with a performance goal orientation should be less predisposed to self-regulation than learning goal orientated people. This is because performance goal orientated people would rather avoid an increase in effort.

However, what is important for the current study is the possibility that goal orientation, through its predispositional nature, would influence the individual's perception of the task at hand as either a challenge or a threat. Situational aspects may further influence the goal orientation. It may therefore be hypothesized that through various influences from interacting team members, an individual's behaviour, regardless of his specific goal orientation, may be influenced in the team context.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

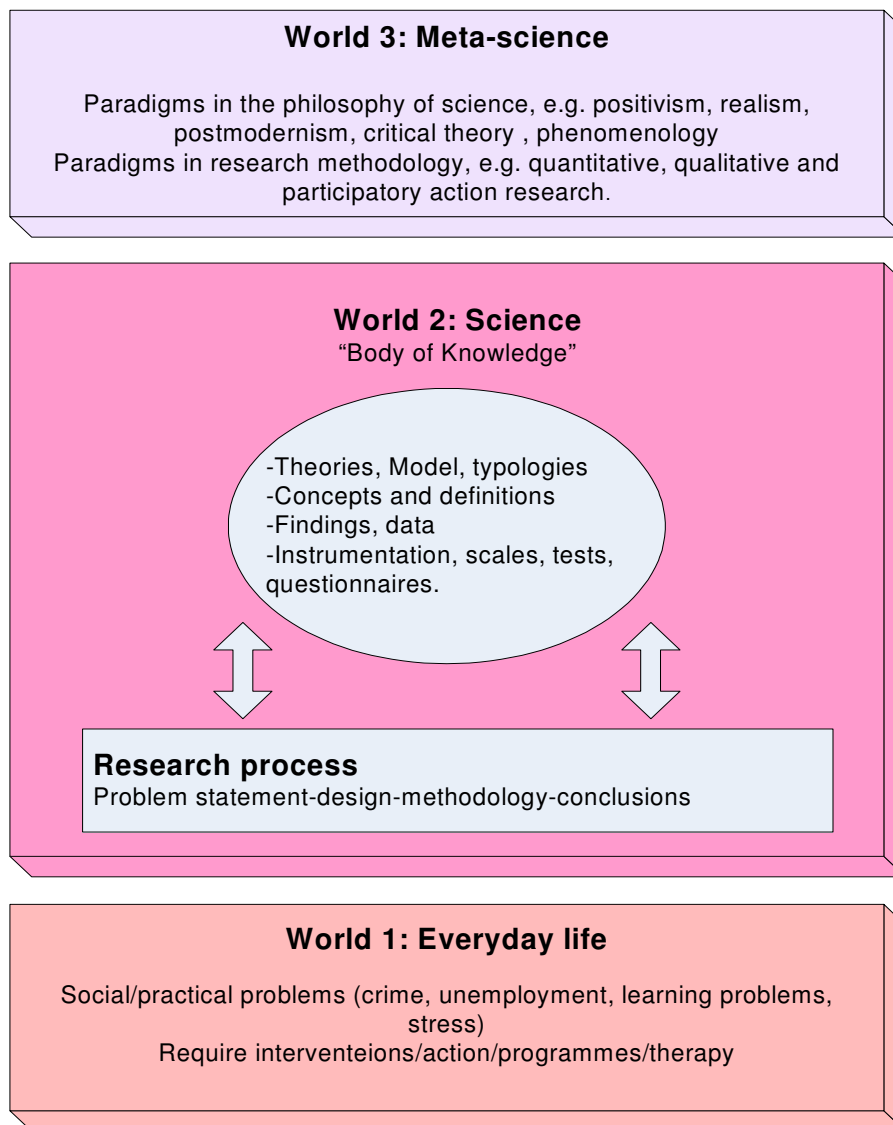
In ordinary life, man works and lives in a world where he continuously is confronted with problems, which are usually solved through problem solving thought processes. Behaviour is adapted or new behaviour patterns are learned and adopted in order to live a normal life.

Mouton (2001) refers to this as the world of everyday life and lay knowledge. However, there is another world, the second world according to Mouton, where man takes phenomena from everyday life and systematically finds the truth about it through processes of science and scientific research and develops the truth into theories. Theories are developed for others to build on and to be proven as correct or to be rejected on the grounds of empirical evidence (Lutz, 1983; Mouton, 2001).

Mouton (2001) lastly refers to a third world, namely a world of metascience. The third world goes beyond the scientific truth where new paradigms and philosophies are developed and confirmed. These paradigms and philosophies guide scientific research processes and form the basis of all new knowledge formation (Mouton, 2001). Refer to Figure 3.1 for Mouton's summary of this in a basic framework.

Lutz (1983) briefly refers to the stages of development in the Western world's research philosophy. First the church was displaced as the source of secular truth. Then, developing from philosophy, the natural sciences could stand on their own research feet with their traditional research model (or the scientific research model) with phases of theory evaluation, hypothesis, measurement, data collection, analysis, and hypothesis testing and theory formation. The social sciences developed from the natural sciences and started to provide independent scientific knowledge.

Figure 3.1: The Basic Science Framework



Adapted from: Mouton (2001).

The development of the independent social sciences meant that empirical data was made available to serve as evidence when the validity of social problems or social research results was determined (Lutz, 1983). On grounds of empirical data, research results could be verified independently. The fact that the social sciences under certain circumstances adhere to the research methods of the natural sciences is referred to as a form of positivism (Bailey, 1982). This, however, is an ongoing debate. Early views on this issue were that of Emile Durkheim, who believed that social phenomena are orderly and could therefore be generalized. According to Mouton (1993), Durkheim believed that social facts, which refer to all social phenomena that exist independently of the individual's influence sphere, are equal to that of

the facts of the natural sciences in as far as they exert external influence on the individual (Mouton, 1993). Hughes (1990) interprets Durkheim's social facts construct as criteria to use when objectively investigating social phenomena as if they were physical facts. Especially the scientific method of experimentation could be used to explain social observable facts, according to Durkheim. This view is in sharp contrast to the view of Dilthey, who believes that human behaviour is unpredictable and nothing could be generalized about it (Bailey, 1982).

According to Bailey (1982), Max Weber suggested an intermediate approach. Weber believed that the scientific research method had a role to play in social research, but that it was insufficient. Bailey (1982) further reflected the views of Weber as that the social sciences also needed a research method that could facilitate direct understanding (Verstehen) and which again could not be used in the natural sciences because of a different relationship between researcher and research data.

Modern-day social scientists believe that social phenomena are indeed orderly enough to be able to predict. To do this, social sciences should try to find actual causes for the researched phenomena, which is unrealistic. Ultimately, casual explanation would be the best alternative for the natural sciences' actual cause research goal (Bailey, 1982).

The above-mentioned views are not to express the positivism debate in its fullest consequences. It merely serves to introduce the argument that the social sciences work hard to prove that their own research philosophy and research method can deliver empirical results that are based on direct experience and that can be independently verified (Lutz, 1992), and with which social phenomena can be investigated, described and solved to add value to man's everyday life.

3.2 The Research Approach

3.2.1 Qualitative or quantitative approach?

Robert Burns emphasizes that the core difference between qualitative and quantitative is their "disagreement about the simplification of reality" (Burns, 2000:12). The following table depicts the difference between the two approaches according to Eisner (Burns, 2000):

Table 3.1: Eisner's critical difference between qualitative and quantitative approaches

Drive	Qualitative	Quantitative
<i>Concerned with</i>	Processes	Consequences
Work with	Organic wholeness	Independent variables
Interest	Meanings derived from direct	Behavioural statistics

	experience	
Expected outcome	Context-bound conclusions based on perceptions and interpretations	Scientific generalisations.

Adapted from: Burns (2000)

Burns (2000) views the strengths and limitations of the two different approaches as follows:

Strength of the quantitative approach

This approach uses reliable measurements, control of which is achieved through sampling and design. In the natural sciences this method is used to determine causation of phenomena, which can be proven through testing of hypotheses. This testing is done through the deductive process, which produces data that can be statistically analysed.

Limitations of the quantitative approach

When this approach is used in social science research, the focus on human behaviour complicates the hypothetical predictions that are set. Social behaviour cannot be investigated in a controlled experimental environment. Because this approach therefore cannot be totally objective, its generalizations cannot always be made true for all people (Burns, 2000).

Strengths of the qualitative approach

The results of the investigation are often unexpected, because the researcher is much more personally involved in the process and has an insider view of the field. It is usually possible to suggest different relationships from the results. The research report is narrative as opposed to the statistical nature of the quantitative approach (Burns, 2000).

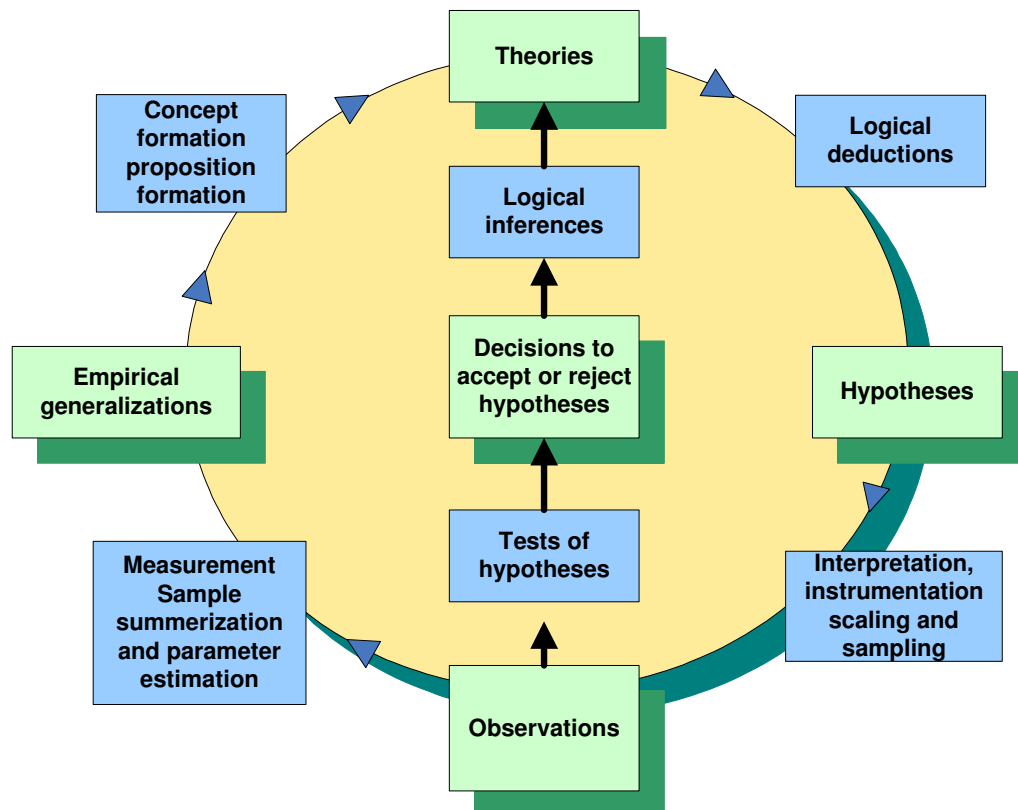
Limitations of the qualitative approach

The qualitative approach is criticized by followers of the quantitative method for inadequate validity and reliability of its measuring methods. Because of the inadequate measurements, it is difficult to apply conventional standards (Burns, 2000). The context in which the data is gathered cannot be replicated, nor can the results be generalized. The approach has a strong subjective nature and has the potential to be biased. It usually takes time for the researcher to establish a relationship of trust with the respondents and it is difficult to guarantee the anonymity of those participating in the research (Burns, 2000).

The Scientific Model

Based on the qualitative process, the scientific model of Wallace has been widely used and referred to (Baker, 1994). The process model is depicted figure 3.2:

Figure 3.2: Wallace's Model of Science



Adapted from: Burns (2000).

The deductive part of the process starts with theories on top of the model. Wallace (Baker, 1994) suggested first to scrutinize the theory to establish its suitability to deliver the envisaged results. Thereafter the deductive process may begin. Then hypotheses as a form of prediction are set (Baker, 1994). These predictions are used to determine and confirm the actual observations that will be made rather “than for predicting the actual outcome of such observations” (Baker, 1994: 57). Again the importance of the hypotheses that are set lies in the specification of the measurements that will be used to test the theory. Then the sample is chosen so that it will represent the population the best. The final step in the process is to decide whether to accept or reject the hypotheses. If the results confirm what was expected from the hypotheses, it is accepted and rejected if the results cannot support the hypotheses. The process may be repeated if the results stimulate the creation of new hypotheses that were not anticipated in the beginning (Baker, 1994).

The inductive part of the model will not be used and will therefore not be discussed.

3.2.3 Research Paradigm

According to Bailey (1982), researchers have certain values or a prior logical-rational model (Baker, 1994) that predisposes them to a particular paradigm. As an example, Bailey lists some of the social paradigms as follows:

Table 3.2: Some Common Social Research Paradigms

Paradigm	Unit of analysis	Data-collection method used	Data-analysis technique
“Scientific” or statistical	Usually micro, but may be macro	Survey	Statistics
Social psychology and small-group research	Micro	Usually laboratory experiment or observation	Statistical
Ethnography	From micro to macro (e.g. collective behaviour)	Observation and field notes	Verbal or qualitative analysis of field notes
Ethno-methodology	Micro	Observation and tape recording	Verbal analysis of field tapes and notes

Adapted from: Bailey (1982)

The current research will follow the quantitative approach. It was decided to make use of a survey to collect the data, and the data will be analysed statistically. As indicated by Bailey in the table above, the strength of this process lies in the reliability of the measurements. In this case, four existing developed measurements are used. The formulated research questions that will guide the research will be tested through a deductive process, meaning that the hypotheses are deduced from generalized theory (Burns, 1983). This approach will allow statistical analysis and the following techniques will be used:

Factor analysis using the Oblique procedure and then evaluated by means of a confirmatory factor analysis;

Intercorrelation to determine relationships;

A multiple-regression analysis, and

A structural equations model to confirm the theoretical model.

3.3 The Design

The research was designed with the conceptualized model in mind (refer to Figure 1.1: The team evaluative and interaction influencing process model). The research design started with a review of the existing literature of team climate, emotional intelligence, team member exchange and goal orientation.

As reflected by the conceptual model, the study is in essence a correlation study. According to Stern (1979), a correlation study is one that “measures two or more variables and attempts to assess the relationship between them, without manipulating any variable” (Stern, 1997:34). The focus of the research is to establish whether any of or all the variables are related and if related, to what degree?

One important strong point of this method is that it can determine a relationship between variables. However, the condition is that each of the variables is measured in each of the individuals being studied (Stern, 1979). A limitation is that a correlation study cannot give conclusive information about the causes of the relationship, just that the variables are related or not (Stern, 1979). Also refer to the different research questions formulated in Chapter 1 to confirm the study as a correlation study.

3.4 The Questionnaire

Questionnaires deliver optimal results when used in natural environments like work teams in organization (Rosenthal & Rosnow, 1984). The authors believe that a questionnaire is especially useful in situations where the proposed sample have the language skills and experience to express their own feelings and behaviour patterns adequately (Rosenthal & Rosnow, 1984).

The questionnaire is a popular and versatile mode to gather data (Rosenthal & Rosnow, 1984; Wagenaar & Babbie, 2004). It is usually mailed to the selected sample with a stamped return envelope, or can also be delivered and collected after completion (Bailey, 1982; Rosenthal & Rosnow, 1984). Controlling the data gathering is important, as follow-up letters and reminders to return the completed questionnaires before the due date has proven to increase the response rate drastically (Rosenthal & Rosnow, 1984). May (2001) describes the questionnaire as a data gathering method to have similarities to the research methodologies of the natural sciences, because all surveys are either based on some theoretical assumption or tries to construct a new theory. Questionnaires measure behaviour, attitudes and facts. The questions in the survey should be constructed so that the respondents are able to answer each with confidence (May, 2001; Wagenaar & Babbie, 2004).

Because questionnaires are completed individually by the respondents and without the assistance of the researcher, the respondents should be capable and willing to answer the questions. This differs from a structured interview where the researcher may be able to confirm understanding of the notion in question with the respondent (Bailey 1982).

For this research a questionnaire was compiled consisting of four previously developed instruments, viz measuring the concepts of emotional intelligence, team member exchange, goal orientation and team climate, respectively. These four measurements were chosen because they had been used in previous research and were available for use in this research effort.

All four instruments were developed outside South Africa. The factor structure of all four instruments that were used in the South African context, were compared with the original structure reported by their respective developers in order to confirm the intercultural transferability of the construct. Culture groups differ in their behaviour patterns because their perception of their social reality is different. This confirms Anastasi's (1988) view that a culture-free test is a fallacy, because heredity and environmental factors influence behaviour. As a psychological test reflects behaviour, it will be highly unlikely to develop a scale that is culture-free and universally applicable owing to each culture group's unique perception of their own social environment (Anastasi, 1988; Samuda, 1998).

Refer to Annexure A for a copy of the questionnaire used in this research. The following instruments were included in this survey, with an indication of the behavioural domain measured by each instrument:

Emotional Intelligence Scale, measuring appraisal and expression of emotion, regulation of emotion and utilization of emotion, (Schutte, Malouff, Hall, Haggert, Cooper, Golden, & Dornheim, 1998).

Team Member Exchange Quality, measuring quality of working relationships within a team, effectiveness of team meetings and team cohesiveness. (Seers, 1998).

Goal Orientation Scale, measuring a learning goal orientation and a performance goal orientation (Button, Mathieu & Zajac, 1996)

Team Climate Inventory, measuring vision as team goal, participative safety, task orientation and support for innovation (Anderson & West: 1998).

3.5 Emotional Intelligence Scale

This 33-item scale was developed by Schutte *et al.* (1998) to measure the ability to adaptively recognize, express, regulate and harness emotions of the self and of others. It is intended to assess emotional intelligence as conceptualized by Salovey & Mayer (1990). They designed a 5-point Likert-type scale on which “1” represents “strongly disagree” and “5” represents “strongly agree” to answer each item. Items 5, 28 and 33 are reverse scored. An orthogonal-rotation factor analysis was conducted on 62 items and resulted in four factors with loadings of 0,40 and above (Schutte et al., 1998). Of the four factors, one strong factor with 33 items and an Eigenvalue of 10,79 loaded at 0.40 and higher. The set of 33 items represented the different categories of the original Salovey and Mayer-model (1990) proportionately the best and it was decided that this one strong factor constituted the scale (Schutte *et al.*, 1998). An internal consistency showed a Cronbach’s alpha of 0.90 for the 33-item scale (Schutte *et al.*, 1998).

3.5.1 Team Member Exchange Quality

Seers (1998) developed the Team Member Exchange Quality Scale by adapting the initial instrument used by Seers and Graen (1984). Extensive research was previously done on the exchange relationship between team leader and team members. Seers saw the need to research the relationship and exchange between members in a team (Seers 1998). Team Member Exchange Quality Scale measures the employee’s evaluation of the quality of work relationships with other team members. The scale consists of 18 Likert-type items on a seven-point scale ranging from “1” as “totally disagree” to “7” as “totally agree”.

Seers (1989) subjected the 34 team related items to a principal axis factor analysis with varimax rotation to identify the items that represent the theory in a reliable scale. Three strong factors were identified: the first to reflect the team’s meeting effectiveness, the second to represent the team members’ cohesiveness and the third factor to reflect the quality of the working relationship among the team members (Seers, 1998).

The factor loading of the different variables can be depicted as follows:

Table 3.3: Team member Exchange Quality Scale

Item number	Factor One	Factor Two	Factor Three
	Meeting effectiveness	Team member cohesiveness	Quality of working relationship
1	.80		

Item number	Factor One	Factor Two	Factor Three
	Meeting effectiveness	Team member cohesiveness	Quality of working relationship
2	.78		
3	.64		
4	.60		
5		-.66	
6		.62	
7		.59	
8		-.74	
9			.55
10			.48
11			.48
12			.46
13			.46
14			.62
15			.58
16			.73
17			.65
18			.54

Adapted from: Seers (1998)

Items 5 and 8 are reverse scored.

The developed measurement was performed at the organization in two follow-up sessions, 12 months apart. Owing to changes in the organization, only 123 of the original 154 employee respondents completing the questionnaire in the first session could be used again in the follow-up session a year later (Seers, 1989). The scale characteristics can be depicted as follows:

Table 3.4: TMX Scale characteristics

Factor	Number of Items	Mean		Standard Deviation		Alpha-coefficient	
		1	2	1	2	1	2
1	4 (Meeting)	3.43	3.31	.90	.88	.83	.84
2	4 (Cohesion)	2.86	3.02	.89	.82	.80	.75
3	10 (Quality of work role)	2.78	2.69	.55	.55	.85	.82

Adapted from: Seers (1998)

3.5.2 Goal Orientation Scale

Button, Mathieu and Zajac (1996) used the theoretical and empirical work of Dweck's motivational theory (1989) to generate a pool of performance and learning goal orientation items. The items were further formulated so that the content was not specific to a particular setting or a particular type of achievement activity (Button, Mathieu & Zajac, 1996). A scale with 20 items (10 items each for performance and learning goal orientation) was tested in four different studies.

Ten items were generated to reflect that performance goal orientation conceptually. Accordingly, the concept implied that an individual strives to gain favourable judgement on his performance or that the individual would avoid challenging tasks in order to evade negative judgement on his competence. The other 10 items were selected to reflect a learning goal orientation, which proposes that an individual always tries to understand something new or strives to increase his level of competence in a particular task. An individual with a learning orientation will not turn down a challenging task and will rather try to improve on previous standards (Button, Mathieu & Zajac, 1996).

The questionnaire of 20 items was taken put to an undergraduate psychology class (N=374). The Cronbach Alpha for the 10 performance goal orientation questions was .76 and .79 for the 10 learning goal questions. Two confirmatory factor analyses were done on the data. The first was done to confirm that performance and learning orientations are indeed two different dimensions. The second analysis was done to determine the relation between the two dimensions and other demographic and motivational variables (Button, Mathieu & Zajac, 1996). Also tested was the goodness of fit for a two-factor solution or a single factor solution. The latter resulted in a poor fit to the data. The two-factor model fitted the data slightly better. In comparison the analysis results were as follows:

Table 3.5: Goodness of fit results

One-factor Model	Two-factor Model
$\chi^2(170, N=374)=1035.76, p<.001$	$\chi^2(169, N=374)=427.88, p<.001$
RMSAE= .12	RMSAE= .06
GFI= .68	GFI= .68
NNFI= .33	NNFI= .80
CFI= .40	CFI= .82

Adapted from: Button, Mathieu & Zajac (1996).

The factor loadings for each variable were statistically significant ($p < .05$) and were greater than .41 in the two-factor model (Button, Mathieu & Zajac, 1996). Two items were dropped from each factor and these 16 items were further analysed.

Button, Mathieu & Zajac, (1996), also completed a study in order to establish whether the dispositional measures of performance and learning goal orientation could be distinguished from the situational measures of the same two constructs. The study resulted in two models that were fitted to the data. The first was a four-factor model placing performance goal orientation, learning goal orientation, situational performance goal and situational learning goal orientation each in separate latent factors (Button, Mathieu & Zajac, 1996). The second model placed the performance goal (both dispositional and situational) and the learning goals (again both dispositional and situational) in two separate factors (Button, Mathieu & Zajac, 1996). The goodness of fit results indicated that the four-factor model had a significantly better fit to the data. This meant that dispositional and situational aspects of goal orientation are distinguishable (Button, Mathieu & Zajac, 1996). In reality, this result can be interpreted as *“while dispositional goal orientations predispose individuals to adopt particular response patterns across situations, situational characteristics may cause them to adopt a different or less acute response pattern for a specific situation”* (Button, Mathieu & Zajac, 1996:40).

The results therefore indicated convincingly that goal orientation is best represented by two distinguishable and uncorrelated dimensions, viz performance goal orientation and learning goal orientation, as reflected in the questionnaire (Button, Mathieu & Zajac, 1996).

3.5.3 Team Climate Inventory

Anderson and West (1998) developed the Team Climate Inventory to measure the climate for work group innovation specifically. It consists of 38 Likert-type questions on a seven-point scale. These items range from “1” as “totally disagree” to “7” as “totally agree”.

From 61 items that were factor analyzed, 38 items indicated 5 different factors with an alpha reliability of 0,5 or above. The factors are as follows:

Vision, with 11 items and a coefficient alpha of 0,94;
Participative safety, with 8 items and a coefficient alpha of 0,89;
Support for innovation, with 8 items and a coefficient alpha of 0,92;
Task orientation, with 7 items and a coefficient alpha of 0,92; and
Frequency of interaction, with 4 items and a coefficient alpha of 0,84.

The instrument was used to measure the level of team climate for innovation under senior management teams in 27 hospitals in the UK (Kivimaki *et al.*, 1997). The instrument was also adapted for use in Sweden under production teams (Kivimaki *et al.*, 1997).

Exploratory factor analysis indicated the original four factors (vision, participatory safety, task orientation and support for innovation). However, on a British sample, factor analysis resulted in the identification of a fifth factor, called interaction frequency (Kivimaki *et al.*, 1997).

Kivimaki *et al.* (1997) replicated previous research by investigating the psychometric properties of a Finnish version of the TCI. They specifically tested the internal homogeneity, underlying factor structure, construct validity and factor replicability across samples of high and low job complexity (Kivimaki *et al.*, 1997). A large Finnish sample (N=2 265) was used and some of the factor analysis results of the Finnish research can be summarized as follows:

The five-factor solution had a slightly better explanation of the total variance than the four-factor solution (63.9% and 64.7% over the slightly weaker 61.1% and 61.8%) (Kivimaki *et al.*, 1997);

After varimax rotation, the five-factor solution showed considerably fewer items cross-loaded than the four-factor solution and thus indicated a better fit to the data (Kivimaki *et al.*, 1997).

The results of the five-factor solution corresponded with the original formulation of the TCI, which was confirmed by confirmatory factor analysis (Kivimaki *et al.*, 1997).

3.5.4 The Sample

Gaining access to different organizations in order to ask approval to participate in the survey, proved more difficult than initially planned.

It was decided to use a convenience sampling method, so called because the sample includes anybody who appears to be able to answer the questions or who shows interest in the survey (Bailey, 1982; Baker, 1994). De Vos (1998) refers to this sampling method as accidental sampling, because it usually includes those who are nearest and most available in the sample. Babbie (2007) warns against the danger of over generalizing results from such a sample. Babbie (2007) points out that this method is frequently used but he considers it risky

Baker (1994), however, believes that careful planning can soften this risk. If the probability is considered that the selected respondents are likely to comply with the research request and are able to answer the questions, a degree of control is restored.

3.5.5 Sample selection

Eight organizations were selected across the country based on the convenience of access to them. Each organization was contacted personally and was asked to indicate how many employees who would be able and willing to complete the questionnaires. It was suggested that the profile of the ideal respondent would be someone who works in a team environment and who would understand questions on normal day-to-day behaviour in organizational context. The requirement was set that the participants should work in a team environment irrespective of the team structure (hierarchical or work team, virtual team, matrix team, self-management team or project team). An indication of the respondent's team structure was requested as a separate question in the biographical section of the questionnaire.

Thereafter each contact was supplied with an official letter addressed to their Human Resources Manager or individual they identified as coordinator of the data collection action, requesting access to employees in order to complete the questionnaires. A copy of the individual letters is attached as Annexure B. After approval that the respective organizations may be included in the study, the questionnaires were distributed to the organizations.

3.5.6 Data Collection

Three hundred and seventy-five hard copies of the questionnaire were distributed to the different contact persons at the identified companies. The questionnaires were delivered either in person to those in Pretoria and Johannesburg or by courier for those in Nelspruit, Bloemfontein and Cape Town. The anonymously completed responses were collected in the same manner after the contact persons notified the researcher that the completed questionnaires were ready to collect.

Each organization reacted differently to the request. Some responded within two weeks (like the Hospital Emergency Team and the Local Government division in Pretoria). Others needed a reminder. Contact persons were phoned and requested to send the completed questionnaires through. The IT Project Management Group in Johannesburg was reminded four times before any response was provided. As indicated in the feedback summary depicted in Table 3.3, this company had a 54% return rate of 150 distributed questionnaires. The transport company in Bloemfontein in the end decided not to partake in the research. Their management group decided that certain development interventions in their company had the same research results in mind and therefore supported their own initiatives. This announcement came at a very late stage, which left this researcher without an option to replace this company in the identified population. The results registered in Table 3.6 were finalized after four follow-up communications, either by e-mail or by phone.

This method resulted in drawing the following sample:

Table 3.6: Details of research sample

Type of Organisation	Questionnaires Distributed	Questionnaires Received	% Response
Large Life Insurance Co. IT team	30	17	56.6%
Local Government Project Team	30	13	43.3%
Local Government Town Planning	40	32	80%
Hospital Emergency Room Team	20	19	95%
Public Transport Company	35	0	0%
IT Project Management Group	150	81	54%
HR Department Tertiary Institution	50	12	24%
Academic Admin Tertiary Institution	20	16	80%
Total	375	N=190	50.6%

There is no consensus on how to determine the correct sample size. There is, however, common agreement that a sample should reflect all the elements of the bigger population. How the population is defined will therefore influence the character of the sample. The larger the population, the smaller the percentage of that population that should be represented in the sample (Bless *et al.*, 2006; Brynard & Hanekom, 2006; De Vos *et al.*, 2005.).

It is also acknowledged that larger samples will produce statistically more significant results. The homogeneity or heterogeneity of the population will also influence the size of the sample (De Vos *et al.*, 2005). According to De Vos *et al.* (2005), high heterogeneity will require a larger sample in order to reflect the diverse character of the population. Bless *et al.* (2006) summarize the decision requirements on sample size as follows:

The degree of accuracy required;

The degree of variability or diversity in the population, and

The number of different variables examined simultaneously in data analysis. (Bless, Higson-Smith, & Kagee, 2006:108).

Table 3.6 above depicts the sample drawn for the current study. The sample is highly heterogeneous, represents 50% of the population and falls inside the acknowledged limits of traditional methods to determine sample sizes (Bless *et al.*, 2006).

Hair *et al.* (1998) described another method to determine a sample size. They believe that in order to do effective factor analysis, the sample size should be five times the number of

variables being analyzed. The longest scale has 38 items, and with the total number of 112 items, the current sample size is deemed acceptable.

Wagenaar & Babbie (2004) argue that there are no strict standards to determine the most correct sample size. They believe that proof of a lack of response bias is more important than the response size itself. They argue that a 70% response rate is very good and a 50% return can be considered as adequate.

Field (2005) agrees that there are no hard or fast rules concerning sample size for factor analysis. He believes that a sample of 300 is good and a sample of 100 poor. However, Field (2005) argues that factor loading is perhaps a better method to determine factor reliability than only sample size. A combination of the two methods would be the ultimate. According to Field (2005), factors with ten or more loadings of .40 and above, within a sample of 150 or more, should be sufficient.

3.6 Respondents

The sample (N=190) had an average age of 39.12 (SD=9.54), and 72% were in the age group 30-49. Only 6% of the respondents were older than 55, the oldest two in the group being 65-69. Kreitner and Kinicki (2001) refer to extensive research on age stereotypes and the results that age was positively linked to performance and specifically within the age group 25-30. From 30 onwards the profile flattened out. However, the results emphatically indicated that older age is not necessarily linked to non-performance (Kreitner & Kinicki, 2001).

Table 3.7: Age distribution

Demographic information of the sample		
Demographic Characteristics	Sample	
	Frequency	%
Age		
<29	27	14
30-39	72	38
40-49	64	34
50-59	23	12
60-69	3	2
Total	189*	100

The gender distribution was 39% male and 61% female.

Table 3.8: Gender distribution

Demographic Characteristics	Sample	
	Frequency	%
Gender		
Male	74	39
Female	116	61
Total	190*	100

Of the 190 respondents, 23% had a secondary education. The graph illustrates that 58% of the respondents either have a post-school diploma, a national diploma or a Bachelor's degree. It further illustrates that 19% of the sample has a postgraduate qualification. This means that the sample represents an educated part of the population as 77% of the respondents have a post-school qualification.

Table 3.9: Qualification distribution

Demographic Characteristics	Sample	
	Frequency	%
Qualification		
Secondary	4	2
Gr. 12	39	21
Post-school cert.	28	15
Nat. Diploma	41	22
Bachelor's degree	42	22
Honours degree	19	10
Master's degree	16	8
Doctoral degree	1	1
Total	190*	100

The question on the number of individuals per work team (mean was 9.4 with a SD=12.84) resulted in a large number of different team sizes. This may be attributed to respondents probably identifying their work group as a team. A team can be defined as a small group of people with a common commitment. The ideal team size is 8 but can be any size between 4 and 10 (Kreitner & Kinicki, 2001). The majority (55%) of the respondents worked in teams of between 4 and 8 members per team. The graph below depicts the difference in team size as reported by the respondents:

Figure 3.3: Team size

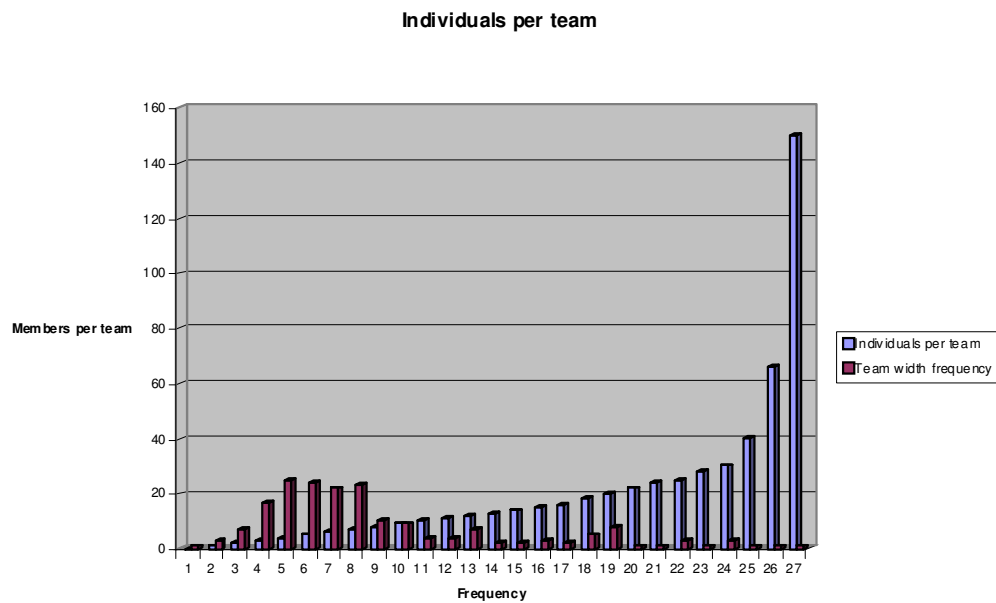


Table 3.10: Members per team

Demographic Characteristics	Sample	
	Frequency	%
Number of individuals in work team		
0	1	1
1	3	2
2	7	4
3	17	9
4	25	13
5	24	13
6	22	12
7	23	12
8	10	5
9	9	5
10	4	2
11	4	2
12	7	4
13	2	1
14	2	1
15	3	2
16	2	1

Demographic Characteristics	Sample	
	Frequency	%
18	5	3
20	8	4
22	1	1
24	1	1
25	3	2
28	1	1
30	3	2
40	1	1
66	1	1
150	1	1
Total	190*	100

Respondents were required to indicate their typical team structure out of five possibilities, namely a matrix team, a virtual team, a project team, a self-management team and a work team. The responses indicated that 70% belonged to a typical hierarchical structure as depicted by the work team model structure in the questionnaire. Another 7% or 13 responses belonged to a matrix type team. Six or 3% worked in a virtual team environment, 18 could identify their team as a project team and two belonged to a self-managed team.

Table 3.11: Team structure

Demographic Characteristics	Sample	
	Frequency	%
Team Structure		
Matrix	13	7
Virtual	6	3
Project	18	9
Self-management	2	1
Work team	151	79
Total	190*	100

It is probably difficult to categorize job types in only 3 categories. The respondents, however, indicated their different work role or job types as 22% technical, 32% managerial and 46% administrative.

Table 3.12: Work role

Demographic Characteristics	Sample	
	Frequency	%
Work Role		
Technical	41	22
Managerial	61	32
Administrative	88	46
Total	190*	100

Of the 189 respondents who completed this question, 26% were in team leader positions, with 74% working as team members.

Table 3.13: Team role

Demographic Characteristics	Sample	
	Frequency	%
Team Role		
Team leader	49	26
Team member	140	74
Total	189*	100

(*Totals may differ owing to missing data.)

3.7 Techniques and Procedures

The data will be measured and analysed using the BMDP Statistical Software (1993) for the factor analysis and the Prelis 2.80 of Jöreskog and Sörbom (2006) for the Confirmatory Factor Analysis.

All the psychometric instruments will be factor-analyzed by using the Oblique procedure and then evaluated by means of a Confirmatory Factor Analysis. A Structural Equations Model will be built to confirm the theoretical model and will be subjected to a Confirmatory Factor Analysis.

CHAPTER 4

RESULTS

4.1 Factor Analysis

As discussed in the previous chapter, the questionnaire used in the current study consists of four previously developed measures. It was necessary to submit these measures to a factor analysis for two main reasons. Firstly, the main goal of factor analysis is to “summarize patterns of correlation among observed variables” (Tabachnick & Fidell, 2001:582). Factor analysis reduces numerous variables to a few factors and help to describe these factor groupings. There are two types of factor analysis. Exploratory Factor Analysis is done early in the research to help order data patterns. Confirmatory Factor Analysis is more complex and is usually used in testing a hypothesis about latent processes in the data (Tabachnick & Fidell, 2001). In essence, factor analysis is done to confirm the number of factors per measure, but also to confirm which variables load on to which factor (Hatcher, 1994). Hair et al (1998) state that it is possible for a researcher to have a preconceived structure per measure in mind and the researcher would then need to confirm whether the data fits the expected structure by using a Confirmatory Factor Analysis. This was the case with the questionnaires used in the current study, as the number of factors was known through the available statistics when the measures were developed. The number and nature of the factors needed to be confirmed as they are used in a new context.

The second reason to submit the data to a Confirmatory Factor Analysis is because all four measures were developed in the United States. Culture groups differ in their behaviour patterns because their perception of their social environment is different. To use a scale which was developed in another social context and expect it to measure the same dimensions, is risky. Such scales should therefore be independently validated (Van Wyk *et al.*, 1999) to ensure that the same variables load on the same number of factors as far as possible.

4.2 Analytical procedure

The analysis was planned by this researcher with support from the study leader and statistically analysed by the Department of Statistics of the University of Pretoria. The analysis was done on BMDP Statistical Software, Release 7.1 package. To ensure that the internal reliability and their factor structures compared favourably with the original questionnaire, the instruments used were revalidated by means of factor analysis. First order Exploratory Factor Analysis was carried out using principal axis factoring with Direct Quatirmin rotations

according to the number of expected factors. The following rules were used to evaluate the results:

Eigenvalues > 1.00 were identified. Clear breaks on a scree plot were marked and all numbers above the break indicated the potential number of factors.

Based on this number of factors identified, an Exploratory Factor Analysis was done.

The results of the Exploratory Factor Analysis were evaluated by accepting all items loading value at ≥ 0.25 on a factor. Items loading on more than one factor and those loading ≤ 0.25 were left out of the next analysis round.

This process was repeated until the above rules were satisfied.

Garson (2008:28) believes that the decision of what the minimum value for a factor loading should be is purely arbitrary. However he acknowledges the social sciences practice of .3 or .35 as cut-off minimum. Garson (2008:28) is of the opinion that lower loadings may be included if the researcher believes it is of value to include such a loading.

With reference to the above-mentioned decision-making rules, Tabachnick & Fidell, (2001) believe that the factor loading value with an orthogonal rotation (when the factors are not correlated) should usually be 0.32 or larger. Under this rotation, the loading value refers to the correlation strength between variable and factor. As soon as it can be established that the factors are indeed correlated (which is usually the case), an oblique rotation is required (Tabachnick & Fidell, 2001). The loading value is then an indication of the measure of the unique relationship between factor and variable (Tabachnick & Fidell, 2001). It was decided to set the factor loading limit at ≥ 0.25 . Tabachnick & Fidell, (2001) refer to suggestions that loadings in excess of 0.71 is excellent, 0.63 is very good, 0.55 could be considered as good, 0.45 as fair and anything less than 0.32 as poor. "The size of loading is influenced by the homogeneity of scores in the sample. If homogeneity is suspect, interpretation of lower loadings is warranted" (Tabachnick & Fidell, 2001: 625). Yet the researcher should take the decision whether the consideration of lower loadings is justified. The character of the factor and whether the inclusion of a variable in the factor grouping will add value to the description of the specific factor, will be of importance, even if the variable loads as low as 0.25. (Hatcher, 1994; Tabachnick & Fidell, 2001). Some of the factor analysis results necessitated the inclusion of factor loadings as low as ≥ 0.25 and it was therefore decided to set the bottom range as such.

The results of the study, based on the guiding rules described above, were then submitted to a Confirmatory Factor Analysis to determine which model best fits the data. These results

indicate whether the validity of the original measure used on the South African data is satisfactory (Van Wyk *et al.*, 1999).

4.3 Confirmatory Factor Analysis

Confirmatory factor analysis confirms the existence of a predicted number of latent factors as well as the variables loading onto the factor that they characterize. This model is then tested within a population of choice with the idea that the model will reflect certain phenomena of reality (Hatcher, 1994). If the data succeeds in reflecting the measured characteristics of the population, the model is considered to fit the model (Hatcher, 1994).

The aim when evaluating a model for a good fit to the data is to have a non-significant Chi-square (Tabachnick & Fidell, 2001). Chi-square is used to test for the significance of the difference in fit between the observed model and the implied model (Hatcher, 1994; Tabachnick & Fidell, 2001).

Chi-square (X^2) is, however, sensitive to sample size and the model fit of a large sample is often difficult to determine (Hardy & Bryman, 2004). With a good fit scenario, X^2 will be relatively small and the corresponding p-value will be large (above 0.05 and closer to 1.00) and will usually result in the p-value being reported as significant (Hatcher, 1994). The Chi-square (X^2) is usually the first step in model evaluation. Because X^2 is statistically sensitive to sample size, other indices, less sensitive, were developed to support the model-fit evaluation process (Hardy & Bryman, 2004).

A low and insignificant value of X^2 is what is desired (Kline, 1998), meaning that the difference between the observed and the implied model is insignificant. Kline (1998) refers to a practice where X^2 value is divided by the degree of freedom in order to lessen the effect of sample size. This practice is also called the practical chi-square fit index (Tabachnick & Fidell, 2001), where a p-value of .0001 is highly significant and technically means that the model does not fit. If X^2/df results in the ratio to be less than 2, as a rule of thumb, the model may be accepted (Hatcher, 1994). Yet there are other fit indices designed to measure the fit and which are much less sensitive to the sample size (Kline, 1998).

The statistical software used in this study, Lisrel 8.80, supplied 35 different goodness of fit indices. The question is whether all indices should be used in the evaluation of the model fit? According to Hatcher (1994), it is good to start the model fit assessment process reviewing some overall goodness of fit indices like the chi-square test, the Bentler Comparative Fit Index (CFI), and the Bentler-Bonnet Non-normed Fit Index (NNFI). Kline (1998) adds an index based on the standardized residuals to Hatcher's list. Vermeulen and Mitchell (2007: 211) decided to use only six goodness of fit indices in their study out of a possible 11 produced

indices. These were Model chi-square, the Root Mean Squared Error of Approximation (RMSEA), the 90% confidence interval of the RMSEA, the Bentler Bonnet Non-normed FIT Index (NNFI), the Comparative Fit Index (CFI) and lastly the Bollen Incremental Fit Index (IFI).

The Bentler Comparative Fit Index (CFI) as well as the Normed Fit Index (NFI) indicates the proportion in improvement of the overall fit of the observed model relative to the implied model. The CFI, if compared to the NFI, is less influenced by sample size and is therefore more popular to use (Kline, 1998). Much the same is the Non-normed Fit Index (NNFI), but it includes a model-complexity correction (Kline, 1998). Small sample sizes may cause the NNFI value to be lower than other fit indices (Kline, 1998). The RMSEA estimates "the lack of fit in a model compared to a perfect (saturated) model" (Tabachnick & Fidell, 2001:699). An RMSEA value of 0.06 or less is considered a good fit and any value larger than .10 indicates a poor fit (Hardy & Bryman, 2004; Tabachnick & Fidell, 2001).

As a guide to decide on the values of an ideal fit for the measurement model, Hatcher (1994) suggests the following values:

The p -value of chi-square should be non-significant and should be larger than .05 and closer to 1.00. Owing to its sensitivity to sample size, this index will rarely be non-significant.

Chi-square should be less than 2.

The comparative fit indices CFI and NNFI should both exceed .9.

4.4 Factor Structure for Emotional Intelligence Scale

The decision guiding rules as described above were followed when the results from the factor analysis of the Emotional Intelligence Scale were analysed. The eigenvalues of the unaltered correlation matrix resulted in 10 factors ≥ 1 . The eigenvalues were 7.58, 2.22, 2.08, 1.82, 1.51, 1.42, 1.26, 1.16, 1.11 and 1.05, respectively.

Because the first eigenvalue was significantly stronger than the rest it was decided to run the first factor analysis with only one factor. Setting the variable loading limit on $\geq .25$, the result was that all the variables loaded on to one factor. Refer to Table 4.1 below. If the loading limit was lifted to 0.55, as suggested by Tabachnick & Fidell, (2001), the results changed to very poor as only 8 items out of 33 loaded ≥ 0.55 .

Table 4.1: Rotated Factor Loading 1 for EI Scale

Item	Factor 1
A1	0.4868
A2	0.4561



Item	Factor 1
A3	0.5819
A4	0.3520
A6	0.3025
A7	0.5179
A8	0.5557
A9	0.5452
A10	0.3921
A11	0.3685
A12	0.5474
A13	0.3592
A14	0.4484
A15	0.3231
A16	0.5255
A17	0.4808
A18	0.6137
A19	0.4802
A20	0.5145
A21	0.4978
A22	0.9801
A23	0.4658
A24	0.6116
A25	0.3930
A26	0.4264
A27	0.6842
A29	0.5114
A30	0.4960
A31	0.4238
A32	0.6222
A5*	0.7720
A28*	0.3597
A33*	0.3683

(* Scores are reverse scored)

The one strong factor result is in total congruence with the original developed scale of Schutte *et al.* (1998). However, this fact was criticised by Austin *et al.* (2004) when they commented on the lack of reverse-keyed items in the scale and reported that two other studies found four sub factors in a re-development effort of the Emotional Intelligence Scale of Schutte *et al.* (1998). These comments motivated the decision to try and use the opportunity to see if more

than one factor can be extracted from the data. The results was however not satisfactory and it was decided to remain with the the one factor result which supported the theory.

The loadings were re-evaluated and it was decided to do a final analysis with the loading limit at 0.25. Problem items 5, 6, 7, 8, and 33 were removed. Items 9 and 11 were retained because of their considered value to the factor, although both had loadings on two factors (refer to Table 4.2). This analysis had the following result:

Table 4. 2: Factor loadings with deleted variables for Emotional Intelligence Scale

Item	Factor Loadings
A1	0.266
A2	0.377
A3	0.508
A4	0.383
A9	0.409
A10	0.443
A11	0.447
A12	0.686
A13	0.503
A14	0.536
A15	0.407
A16	0.639
A17	0.313
A18	0.454
A19	0.617
A20	0.496
A21	0.621
A22	0.555
A23	0.624
A24	0.478
A25	0.415
A26	0.448
A27	0.497
A29	0.402
A30	0.613
A31	0.556
A32	0.467
AA28*	0.237

Item	Factor Loadings
Cronbach Alpha	0.888
% Variance	24.10
Squared Multiple Correlation (SMC)	0.906

(*reverse scored)

The one-factor result confirms the result of the original instrument by Schutte *et al.* (1998).

A Confirmatory Factor Analysis was carried out on the one-factor solution and yielded the following indices:

Table 4.3: Results of Confirmatory Factor Analysis of the Emotional Intelligence Scale on the one-factor model (N=190)

Indices	Value
Degrees of freedom	350
Satorra-Bentler Scaled Chi-square	620.577 (P=0.0)
Root Mean Square Error of Approximation (RMSEA)	0.0640
90 percent Confidence Interval for RMSAE	(0.0557; 0.0721)
Bentler & Bonner's Non-normed Fit Index (NNFI)	0.959
Comparative Fit Index (CFI)	0.962
Bollen Incremental Fit Index (IFI)	0.962

The indices shown in Table 4.3 indicate an acceptable fit to the data. The practical Chi-square (X^2/df) is 1.77, which is acceptable. A RMSEA score of <06 is good. The score of 0.064 is therefore acceptable (Tabachnick & Fidell, 2001). The comparative fit indices are all larger than 0.9 and are therefore acceptable (Hatcher, 1994).

4.5 Factor Structure of Team Member Exchange Quality

An Exploratory Factor Analysis with a Direct Quartimin rotation was carried out on the responses of the 18 Team Member Exchange Quality items. It generated five eigenvalues ≥ 1 , with 4.2, 2.23, 1.67, 1.45, and 1.20 as a result. Five factors were extracted in the first analysis. The decision-making rules described previously were used. It yielded a poor factor structure. The process was repeated until three factors were identified, which was in agreement with the factors identified by the developers of the original measure. The results were as follows:

Table 4.4: Rotated Factor Loadings for Team Member Exchange Quality

Item	Factor 1	Factor 2	Factor 3
B1	0.748	0.028	0.045
B2	1.012	-0.120	-0.004
B3	0.821	-0.092	0.071
B4	0.611	0.242	-0.040
B6	0.132	0.816	-0.089
B7	-0.005	0.910	-0.119
B9	0.046	-0.055	0.536
B10	0.008	0.315	0.310
B11	-0.054	0.034	0.461
B12	0.104	0.186	0.584
B13	-0.014	0.450	0.359
B14	0.079	-0.138	0.474
B15	0.108	0.067	0.288
B16	-0.065	0.114	0.613
B17	-0.033	-0.082	0.423
BB5	0.100*	0.293*	0.086*
BB8	0.403*	0.280*	-0.061*

(*items are reverse scored)

A final Exploratory Factor Analysis, followed by a Direct Quartimin rotation, was done after removing items 10, 13 and BB8 from the results depicted in Table 4.4 above. The results were very much in line with the original instrument. Although the second factor only consists of three items (B6, B7 and BB5), they represent the dimension of Team Cohesiveness well if compared to the original instrument.

The results of the final analysis are as follows:

Table 4.5: Final Rotated Factor Loadings for Team Member Exchange Quality

Item	Factor 1 (Meetings)	Factor 2 (Exchange)	Factor 3 (Cohesiveness)
B1	0.734		
B2	1.005		
B3	0.818		
B4	0.581		

B6			0.830
B7			0.931
B9		0.525	
B11		0.445	
B12		0.566	
B14		0.486	
B15		0.294	
B16		0.620	
B17		0.447	
BB5*			0.297
Cronbach Alpha	0.8795	0.7097	0.6802
% Variance	24.41	9.37	11.6
Sq. Multiple Correlation	0.951	0.772	0.887

(*item reverse scored)

Table 4.6 below indicates the inter-correlation of the Team Member Exchange Quality.

Table 4.6: Intercorrelation of the Team Member Exchange three-factor solution

	Factor 1	Factor 2	Factor 3
Factor 1	1.00		
Factor 2	0.301	1.00	
Factor 3	0.414	0.155	1.00

A Confirmatory Factor Analysis was carried out on the final three-factor results to establish how well the model fitted the data. The results are as follows:

Table 4.7: Confirmatory Factor Analysis of Team Member Exchange Quality

Indices	Value
Degrees of freedom	74
Satorra-Bentler Scaled Chi-square	139.448 (P=0.00)
Root Mean Square Error of Approximation (RMSAE)	0.0684
90 percent Confidence Interval for RMSAE	(0.543; 0.0857)
Bentler & Bonner's Non-normed Fit Index (NNFI)	0.946
Comparative Fit Index (CFI)	0.956
Bollen Incremental Fit Index (IFI)	0.956

According to the rationale to decide on the goodness of fit described above, this model fit is not good but can be accepted.

4.6 Factor Structure of Goal Orientation

The Exploratory Factor Analysis followed by a Direct Quartimin rotation, carried out on the responses of Goal Orientation, produced three eigenvalues of 6.54, 2.94, and 1.15, respectively. The original instrument had two factors of 8 items each. Goal Orientation is distinctively based on two dimensions, Performance Goal Orientation and Learning Goal Orientation. It was therefore not feasible to try and analyse a third factor, as it would be contradictory to the theory. A two-factor factor analysis was carried out and the results were a very good match to the original instrument:

Table 4.8: Final rotated Factor Analysis of Goal Orientation

Item	Factor 1 (Learning)	Factor 2 (Performance)
C1	-0.062	0.552
C2	-0.123	0.788
C3	-0.074	0.776
C4	0.119	0.644
C5	0.224	0.656
C6	0.141	0.553
C7	-0.053	0.725
C8	0.093	0.535
C9	0.830	0.016
C10	0.663	0.136
C11	0.896	-0.106
C12	0.872	-0.100
C13	0.641	0.107
C14	0.751	0.074
C15	0.862	-0.050
C16	0.651	0.027
Cronbach Alpha	0.9238	0.8634
% Variance	37.50	16.31
Sq. Multiple Correlation	0.937	0.881

The inter-correlation between the two factors was:

Table 4.9: Inter-correlation of the two-factor Goal Orientation Scale

	Factor 1	Factor 2
Factor 1	1.00	
Factor 2	0.363	1.00

The Confirmatory Factor Analysis carried out on the two-factor solution (N=190) of Goal Orientation was as follows:

Table 4.10: Confirmatory Factor Analysis of the two-factor solution of Goal Orientation

Indices	Values
Degrees of freedom	103
Satorra-Bentler Scaled Chi-square	180.302 (P=0.0)
Root Mean Square Error of Approximation (RMSEA)	0.0630
90 percent Confidence Interval for RMSEA	(0.0475; 0.0781)
Bentler & Bonner's Non-normed Fit Index (NNFI)	0.982
Comparative Fit Index (CFI)	0.984
Bollen Incremental Fit Index (IFI)	0.984

Again the fit is not exceptionally good, but can be accepted. The practical Chi-square is 1.75, RMSEA is just over 0.06 and the comparative indices are all stronger than 0.9.

4.7 Factor Structure of Team Climate Inventory (TCI)

The responses (N=190) on Team Climate Inventory were subjected to an Exploratory Factor Analysis, followed by a Direct Quartimin rotation, and yielded five eigenvalues. These values were 20.49, 3.33, 1.72, 1.44 and 1.13, respectively. The decision-making rules justified the extraction of five factors during the factor analysis. However, the original instrument only produced four factors. A Finnish version of the instrument produced a five-factor solution, which guided the current study to first try the five-factor solution as also suggested by the eigenvalue result.

Table 4.11: Principal Factor Analysis for a 5-factor solution for Team Climate Inventory (TCI)

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
D1	0.043	-0.019	-0.052	0.857	0.131

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
D2	-0.011	0.059	0.098	0.880	0.033
D3	-0.038	0.047	0.289	0.696	0.001
D4	0.015	0.075	0.420	0.488	-0.001
D5	0.128	0.238	0.086	0.154	-0.255
D6	0.066	-0.029	0.712	0.189	-0.024
D7	0.135	-0.045	0.659	0.282	-0.005
D8	0.072	-0.105	0.794	0.231	-0.066
D9	-0.053	0.132	0.788	-0.087	-0.010
D10	0.033	-0.004	0.771	0.039	0.090
D11	0.107	0.137	0.500	0.161	0.187
D12	0.320	0.163	0.048	0.047	0.437
D13	0.205	0.134	0.023	0.013	0.424
D14	0.000	0.137	-0.037	0.116	0.745
D15	0.135	0.041	0.067	0.142	0.685
D16	0.128	0.141	0.037	0.107	0.686
D17	0.015	0.177	0.220	0.078	0.451
D18	-0.008	0.368	0.243	0.206	0.257
D19	0.091	0.379	0.349	0.045	0.189
D20	0.187	0.377	0.082	0.178	0.136
D21	0.290	0.318	0.268	-0.072	0.113
D22	0.140	0.628	-0.039	0.010	0.152
D23	-0.073	0.879	0.049	0.008	-0.022
D24	0.066	0.793	-0.016	0.054	0.144
D25	0.091	0.756	0.106	-0.050	0.118
D26	0.028	0.841	-0.032	0.125	0.042
D27	0.273	0.497	0.057	0.039	0.091
D28	0.459	0.285	0.106	-0.016	0.167
D29	0.554	-0.102	0.037	0.023	0.152
D30	0.649	0.104	0.032	-0.026	0.208
D31	0.579	0.093	0.093	0.047	0.127
D32	0.557	0.012	0.240	-0.110	0.176
D33	0.578	0.139	0.231	0.042	-0.010
D34	0.629	0.187	0.148	0.029	-0.072
D35	0.983	0.017	-0.154	0.054	-0.025
D36	0.952	-0.041	-0.058	0.042	-0.056
D37	0.830	0.076	0.063	0.038	-0.083
D38	0.497	0.328	0.051	0.034	-0.021

Referring to the results in Table 4.11, nine items either loaded on two or three factors simultaneously or had a low factor loading. It was then decided to try to extract only four factors based on the example of the original instrument. A second four-factor extraction had to be made after the items that were again loading on more than one factor, as well as those with low loadings, were removed. The results were as follows:

Table 4.12: Principal Factor Analysis rotated for a 4-factor solution for Team Climate Inventory (TCI)

Item	Factor 1 (Vision)	Factor 2 (Part Safety)	Factor 3 (Supp for Innovation)	Factor 4 (Task Orient)
D1	0.748	0.000	-0.136	0.212
D2	0.897	-0.030	-0.041	0.092
D3	0.936	-0.070	-0.021	0.042
D4	0.864	-0.002	0.033	0.013
D6	0.818	0.052	0.044	-0.072
D7	0.863	0.123	-0.008	-0.036
D8	0.916	0.074	-0.028	-0.120
D9	0.600	-0.028	0.240	-0.089
D10	0.697	0.032	0.092	0.039
D11	0.577	0.085	0.168	0.179
D12	0.030	0.283	0.150	0.490
D13	-0.032	0.177	0.127	0.480
D14	-0.008	-0.063	0.085	0.844
D15	0.120	0.088	0.006	0.738
D16	0.061	0.092	0.100	0.731
D17	0.223	0.014	0.143	0.472
D20	0.221	0.194	0.340	0.150
D21	0.153	0.289	0.352	0.094
D22	-0.061	0.142	0.624	0.163
D23	0.036	-0.052	0.889	-0.039
D24	0.008	0.059	0.791	0.157
D25	0.021	0.093	0.776	0.112
D26	0.088	0.044	0.791	0.057
D29	0.027	0.538	-0.089	0.152
D30	-0.035	0.369	0.111	0.221
D31	0.110	0.561	0.106	0.132
D32	0.090	0.541	0.052	0.168

Item	Factor 1 (Vision)	Factor 2 (Part Safety)	Factor 3 (Supp for Innovation)	Factor 4 (Task Orient)
D33	0.236	0.584	0.167	-0.031
D34	0.154	0.648	0.210	-0.107
D35	-0.098	0.970	0.009	-0.001
D36	-0.028	0.962	-0.045	-0.048
D37	0.090	0.841	0.088	-0.101
Cronbach Alpha	0.958	0.943	0.941	0.904
% Variance	52.9	9.1	3.9	3.47
Sq Multiple Correlation	0.967	0.958	0.948	0.910

The intercorrelation between the four factors was:

Table 4. 13: Intercorrelation of the four-factor Team Climate Inventory

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.000			
Factor 2	0.519	1.000		
Factor 3	0.572	0.656	1.000	
Factor 4	0.419	0.568	0.548	1.000

A Confirmatory Factor Analysis carried out the four-factor solution (N=190) of Team Climate Inventory was as follows:

Table 4. 14 Confirmatory Factor Analysis on the four-factor solution of Team Climate Inventory

Indices	Values
Degrees of freedom	458
Satorra-Bentler Scaled Chi-square	801.379 (P=0.0)
Root Mean Square Error of Approximation (RMSAE)	0.0630
90 percent Confidence Interval for RMSAE	(0.0557; 0.0702)
Bentler & Bonner's Non-normed Fit Index (NNFI)	0.988
Comparative Fit Index (CFI)	0.989
Bollen Incremental Fit Index (IFI)	0.989

The model fit indices indicate an acceptable fit.

4.8 Correlations

Pearsons Product Moment Correlation Coefficient is an indication of association and measures the degree to which two variables are linearly related (Easton & McColl: 2007, 2). A positive correlation refers to the notion that a change in one variable will concomitantly cause the covariant to change. A negative correlation refers to an inverse correlation between two variables. A value of 0.00 indicates no linear relationship, while a value closer to +1 is considered a positive correlation and a correlation closer to -1 is an indication of a negative or no relationship. A correlation close to 0 further means that the two variables vary separately. Zero indicates a complete independence between the two variables and contrary to that, a correlation of either 1.00 or -1.00 would indicate a complete dependence, positive or negative (Bailey, 1982; Healy, 1990; Rummel, 1976).

It was important to have an illustration of the correlations to see if the resulting relationships correspond with the conceptual research model posed in Chapter 1 as a guide to the study. This study tries to establish whether there are relationships between the independent variables, Emotional Intelligence, Goal Orientation and Team Member Exchange, and the dependent variable, Team Climate for Innovation. The table below illustrates the most important correlations with $r \geq 0.25$ and significant levels of ≤ 0.05 from the Pearson's Correlation Coefficients analysis.

Table 4. 15: Correlation relationships of independent with dependent variables

Variable	Variable name	Team Climate for Innovation	Correlation value	Level of Significants	100*r ²
fa1	EI	fd1	.235	.0011	5.52%
	EI	fd2	.1065	.1434	1.13%
	EI	fd3	.2037	.0048	5.62%
	EI	fd4	.24192	.0008	5.85%
fb1	TMX meetings	fd1	.5399	<.0001	29.15%
	TMX meetings	fd2	.50397	<.0001	25.40%
	TMX meetings	fd3	.53625	<.0001	28.76%
	TMX meetings	fd4	.44568	<.0001	19.86%
fb2	TMX exchange	fd1	.42621	<.0001	18.17%
	TMX exchange	fd2	.52597	<.0001	27.66%
	TMX exchange	fd3	.50229	<.0001	25.23%
	TMX exchange	fd4	.44235	<.0001	19.57%
fb3	TMX Cohesive	fd1	.23144	.0013	5.36%

Variable	Variable name	Team Climate for Innovation	Correlation value	Level of Significants	100*r ²
	TMX Cohesive	fd2	.25439	.0004	6.47%
	TMX Cohesive	fd3	.26070	.0003	6.80%
	TMX Cohesive	fd4	.31560	<.0001	9.96%
fc1	Learning	fd1	.15736	.0301	2.48%
	Learning	fd2	.06085	.4043	.37%
	Learning	fd3	.0648	.3744	.42%
	Learning	fd4	.10212	.1609	1.04%
fc2	Performance	fd1	.13566	.0620	1.84%
	Performance	fd2	.02335	.7491	.05%
	Performance	fd3	.08903	.2219	.79%
	Performance	fd4	.08238	.2585	.68%

The correlation matrix is reflected below as Table 4.16

Table 4. 16: Pearsons Correlation Coefficients, N=190

		F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
		fa1	fb1	fb2	fb3	fc1	fc2	fd1	fd2	fd3	fd4
F1	r p	1.000									
F2	r p	.0625 .3912	1.000								
F3	r p	.1444 .0468	.4125 <.0001	1.000							
F4	r p	.3039 <.0001	.2690 .0002	.1735 .0166	1.000						
F5	r p	.2015 .0053	.1122 .1231	-.0677 .3529	.3259 <.0001	1.000					
F6	r p	.1552 .0324	.1754 .0155	-.0153 .8339	.1304 .0729	.3678 <.0001	1.000				
F7	r p	.2350 .0011	.5399 <.0001	.4262 <.0001	.2314 .0013	.1573 .0301	.1356 .0620	1.000			
F8	r p	.1065 .1434	.5039 <.0001	.5259 <.0001	.2543 .0004	.0608 .4043	.0233 .7491	.6113 <.0001	1.000		
F9	r p	.2037 .0048	.5362 <.0001	.5022 <.0001	.2607 .0003	.0648 .3744	.0890 .2219	.65331 <.0001	.7663 <.0001	1.000	
F10	r p	.2419 .0008	.4456 <.0001	.4423 <.0001	.3156 <.0001	.1021 .1609	.0823 .2585	.5685 <.0001	.7019 <.0001	.7346 <.0001	1.000

Healy (1990) emphasizes that the correlation coefficient answers only the following three questions: Is there a relationship? How strong is the relationship and what is the direction thereof?

The last column of Table 4.14 indicates r^2 as a percentage of variance explained by the correlation and is once again a confirmation of the results discussed above.

4.9 Path analysis

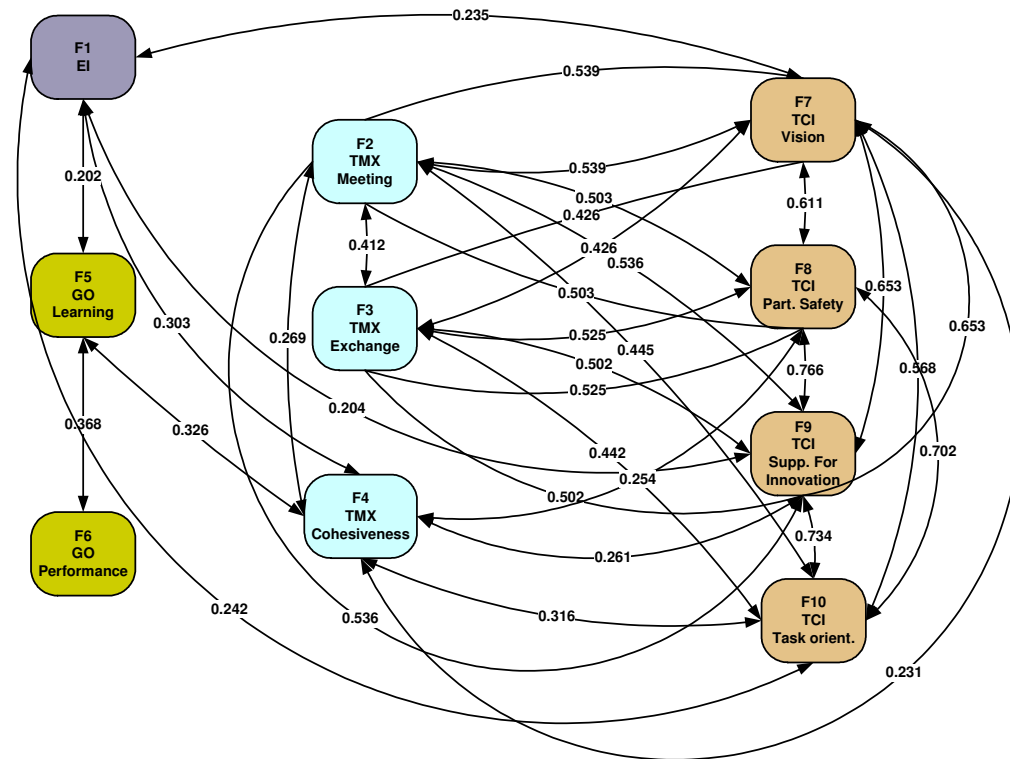
The SAS statistical package, specifically the Proc Calis procedure, was used to do this analysis (SAS Institute Inc. 1999). The aim of this analysis was to answer the second research question, “What is the predictability of emotional intelligence, team member exchange and goal orientation on a team climate for innovation?” as outcome variable. The analysis was also done to eventually build a structural equation model to predict a team climate of innovation, as final answer to research question five.

As suggested by Hatcher (1994), Proc Calis is run to perform a confirmatory factor analysis in order to confirm the factor structure of a data set. A measurement model is then built and validated from this analysis. This is done to reflect the causal relationship of the latent variables within the model. Latent variables emerge from the findings as a combination of different variables in a factor cluster to form a conceptual construct. A Structural Equation Modelling (SEM) procedure or path analysis maps the interaction between these latent variables to a specific outcome (Hatcher, 1994; Kline, 1998).

One of the outcomes in this study is to build this structural model as confirmation of the initial conceptual model set as guideline to the study in Chapter 1. A confirmatory factor analysis was done on each of the four different instruments, with the results reflected in Table 4.3 for Emotional Intelligence (EI), Table 4.7 for Team Member Exchange (TMX), Table 4.10 for Goal Orientation (GO) and Table 4.14 for Team Climate (TCI). However, the data is non-normal and the sample size (N=190) was unfortunately too small to accommodate all of the latent variables in one model. It is common practice that if the measurement model cannot be verified, the researcher will not proceed to develop the structural model that specifies causal relationships between the latent variables (Garson, 2007; Hatcher, 1994; Kline, 1998). It was decided not to proceed with the SEM procedure but to follow another route

As far as could be determined, the postulated combined relationship between emotional intelligence, goal orientation, team member exchange and team climate had never been studied previously. The research conceptual model as combination is also not based on empirical theory but was develop out of four different existing instruments, each based on its own theoretical structure. It was then decided to develop a model based on the correlation matrix in order to reflect the relevant relationships between the different variables. The connections as illustrated in Figure 4.1 only reflect a relationship between two variables and do not indicate any causality.

Figure 4. 1: Correlation model >.25



Furthermore, it can be deduced from the correlation results (Table 4.16) that not all the reflected relationships are statistically significant. As was previously reported, only the relationship between team member exchange and team climate for innovation is of any significance. Referring to the correlation matrix in Table 4.16 as well as the correlation model in Figure 4.1, it appears that a weak relation exists between emotional intelligence (F1-fa1) and one factor of team climate for innovation (F4-fb3-Cohesiveness), and another between emotional intelligence (F1-fa1) and team climate for innovation (F10-fd4-Task orientation). This result supports the decision to reject the research conceptual model.

It was decided to do a path analysis by estimating the parameters with diagonally weighted least squares estimation (Garson, 2007). This estimation is a distribution-free method and the normal distributed data assumption is therefore not needed (Garson, 2007; Hatcher, 1994).

A model was developed based on the existing theories as conceptualized in the research model, but with only the strongest correlation relationship links between the factors. This model is reflected in Figure 4.2. The intent was to determine the causal relationships between the independent variables (EI, TMX and GO), and the dependent variable team climate for innovation (TCI). Two more models were developed, each time adding more of the weaker correlations in order to establish a more comprehensive and better fitting model. The three

models are represented in Figures 4.2, 4.3, and 4.4, respectively. These models were subjected to the path analysis, and a summary of their different goodness of fit indices follows thereafter in Table 4.17.

Garson (2007) warns against overestimating goodness of fit for models with a small sample (<200), because the model is not necessarily strong when the fit indication is high. According to Garson (2007), GFI should at least be greater than .95, but owing to problems associated with the measure, it is no longer considered the preferred measure of goodness of fit. Garson suggests that an adjusted GFI be used. An adjusted GFI (AGFI) measure of >1.0 is considered a very good fit, whilst a value of <0 is associated with a poor fit. Again a cut-off score of .95 should be considered as the minimum (Garson, 2007).

Root mean square residual (RMR) is according to Garson difficult to interpret. However, a value of closer to 0 is preferred. Standardized RMR is considered a better measure, but unfortunately this was not provided by the analysis (Garson, 2007; Kline, 1998).

Parsimonious GFI is a variant of GFI and was developed to penalize models for the lack of parsimony (Garson, 2007). Under normal circumstances complex models will provide a better fit than less complex models. When models are compared, the rule of thumb is that the higher parsimony measure represents the better fit to the data.

Figure 4. 2: Path Analysis Model 1

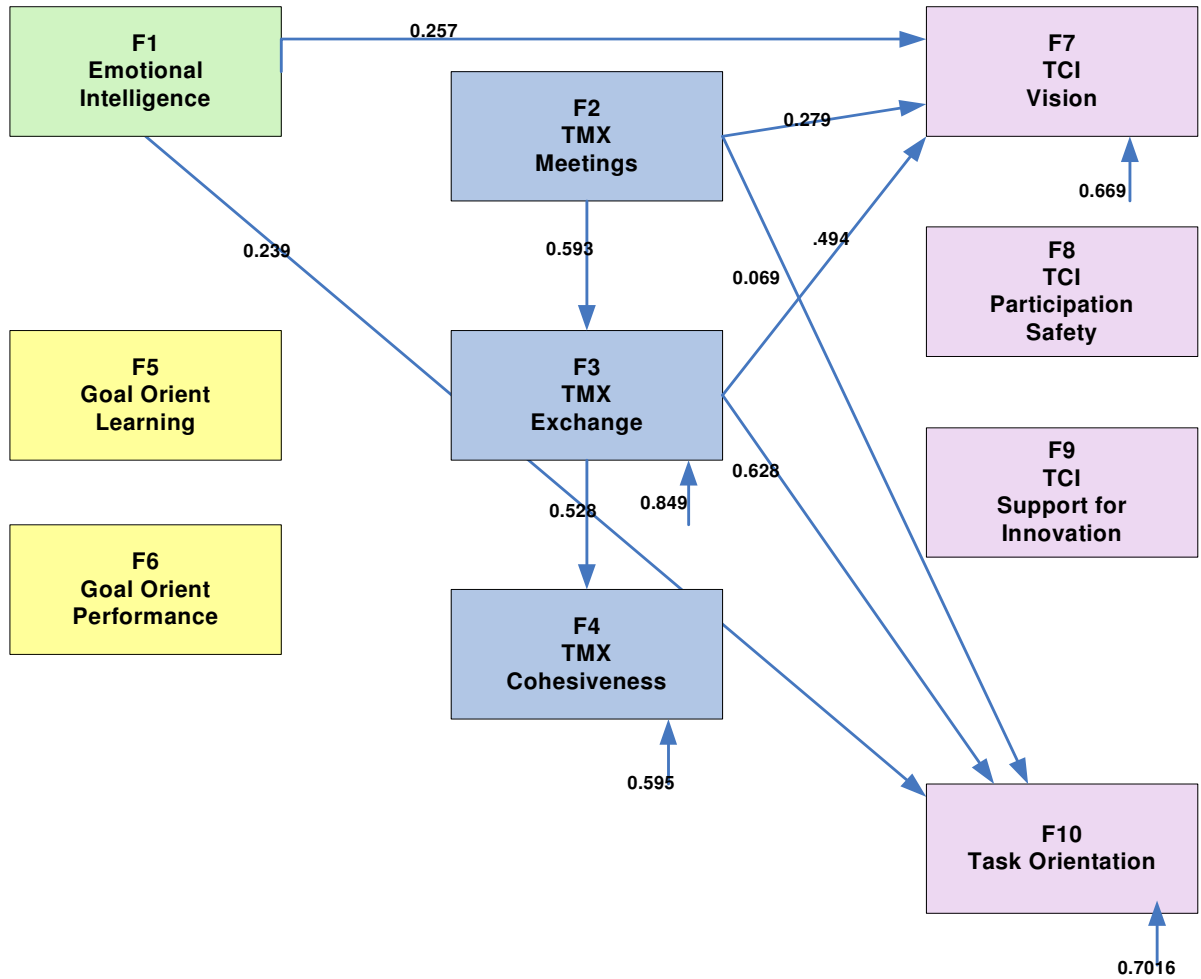


Figure 4. 3: Path Analysis Model 2

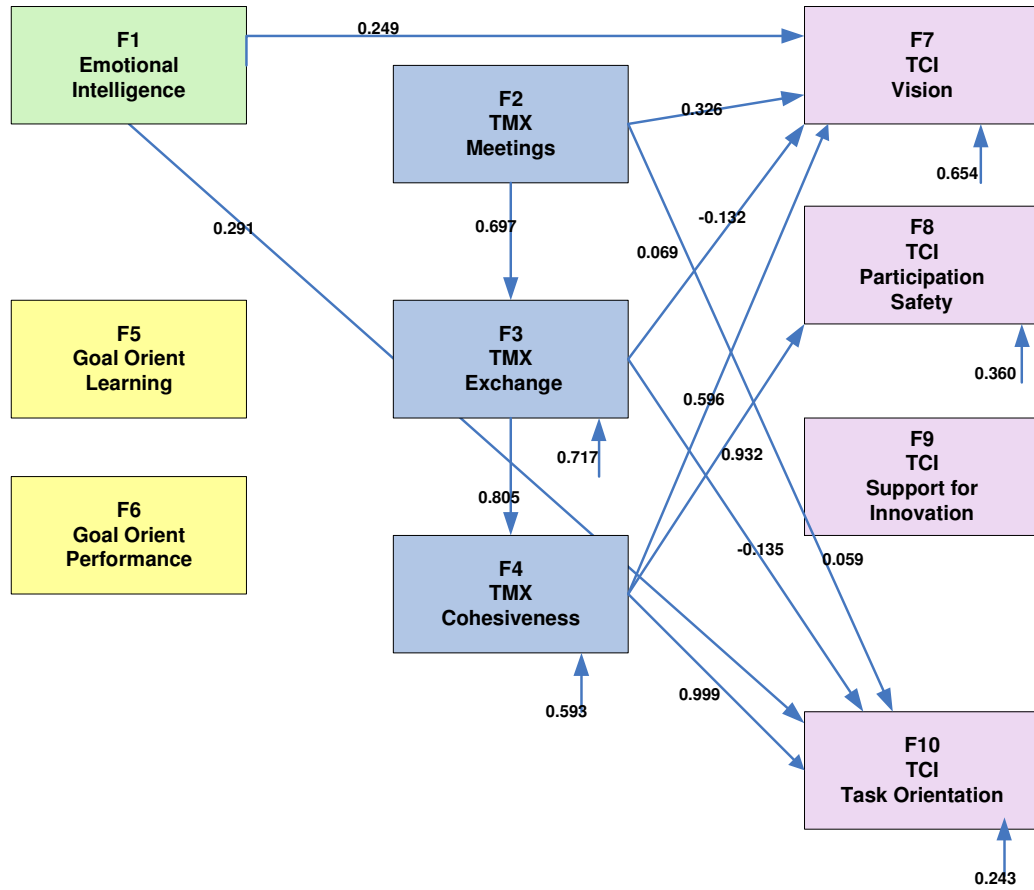


Figure 4. 4: Path analysis Model 3

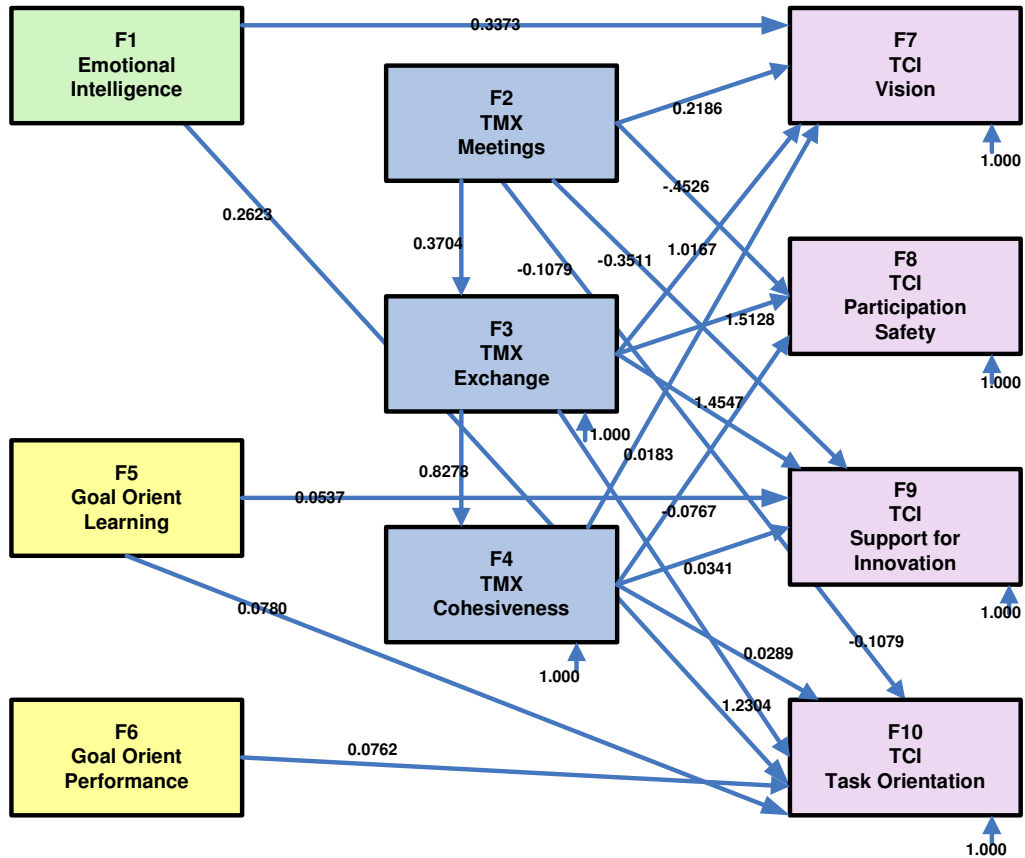


Table 4.17: Goodness of fit indices summary

Indices	Model 1	Model 2	Model 3
Fit function	132.8451	100.7546	41.9322
GFI	0.9859	0.9870	0.9955
AGFI	0.9852	0.9863	0.9953
RMR	0.1679	0.1705	0.0993
P.GFI	0.9639	0.9596	0.9717

From the available goodness of fit indices, it is clear that the models fit the data adequately to well. The root mean square residuals are smaller than the recommended $< .10$ ($< .04$ for a well fitting model) which is considered a good fit. Although the GFI, AGFI and RMR values of all three models indicate a good fit, the PGFI indicate an adequate fit of the models with the data. Comparing the three models, it was decided to accept model 3 as the best fitting model.

In order to answer research question four, a model was developed to reflect the causal relationship between team member exchange and team climate of innovation only. The degree to which TMX predict TCI is depicted in Figure 4.5 below.

Figure 4. 5: Path analyses TMX and TCI

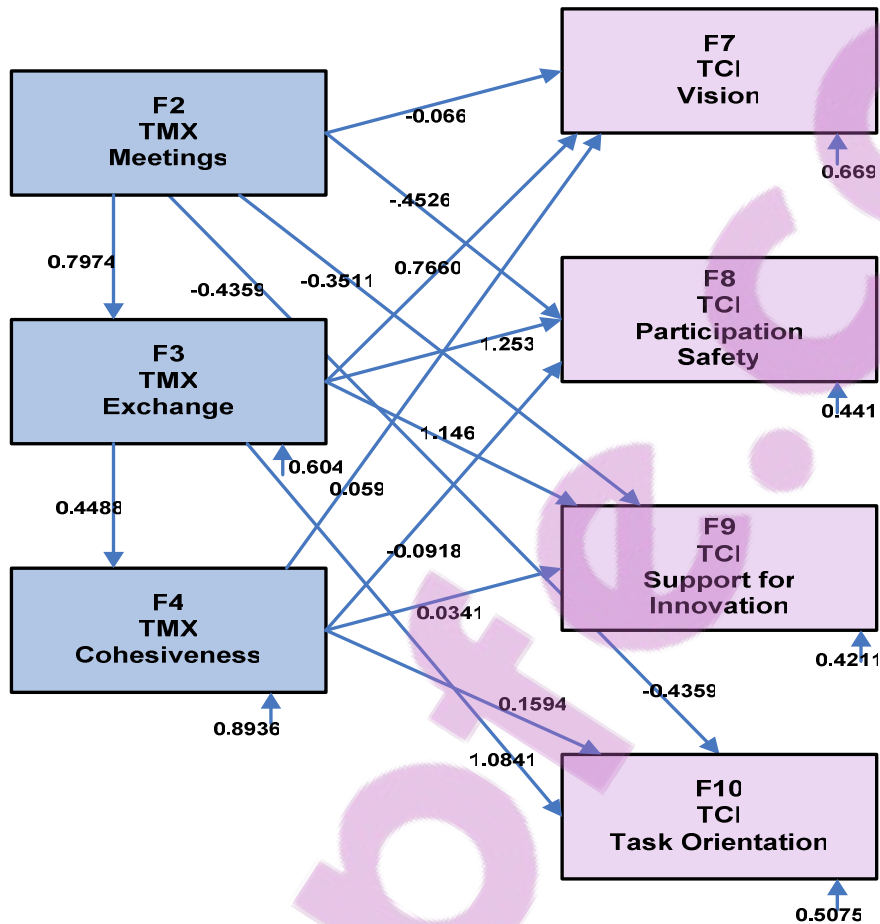


Table 4. 18: Goodness of fit: Model 4-TMX in relation to TCI

Indices	Value
Fit Function	5.2319
Goodness of Fit Index	0.9989
GFI Adjusted for Degrees of Freedom	0.9988
Root mean Square Residual (RMR)	0.0625
Parsimonious GFI (Mulaik, 1989)	0.9410

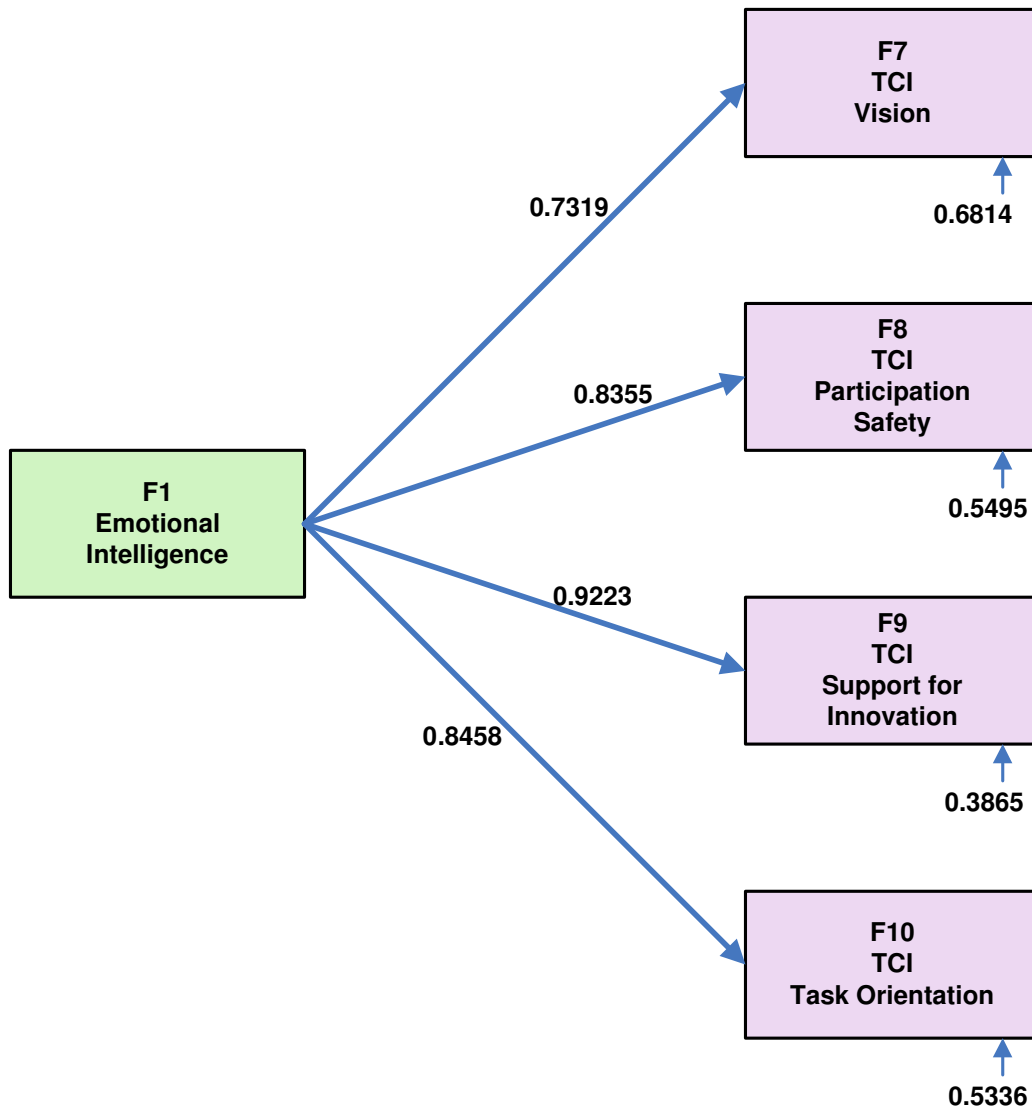
Based on the initial research conceptual model, it was argued that emotional intelligence should have a strong causal relationship with team climate. This argument stems from emotional intelligence theory and proposes that individuals with strong emotional intelligence

abilities should be able to understand their own emotions as well as the emotions of others and also be in control of their own emotions and be able to influence emotions and therefore also perceptions of other individuals. The correlation results indicated very weak correlations and the emotional intelligence and team climate relation was therefore not included in the bigger model. In the light of the strong theoretical link between emotional intelligence and team climate, it was decided to run a path analysis for these two variables only. As was expected on theoretical grounds, a strong causal relationship between emotional intelligence and team climate was achieved. The goodness of fit indices and the path analysis are depicted below.

Table 4.19: Goodness of fit: Emotional Intelligence in relation to TCI

Indices	Value
Fit Function	25.3171
Goodness of Fit Index	0.9960
GFI Adjusted for Degrees of Freedom	0.9957
Root mean Square Residual (RMR)	0.1194
Parsomonus GFI (Mulaik:1989)	0.9600

Figure 4.6: Path analyses Emotional Intelligence and Team Climate



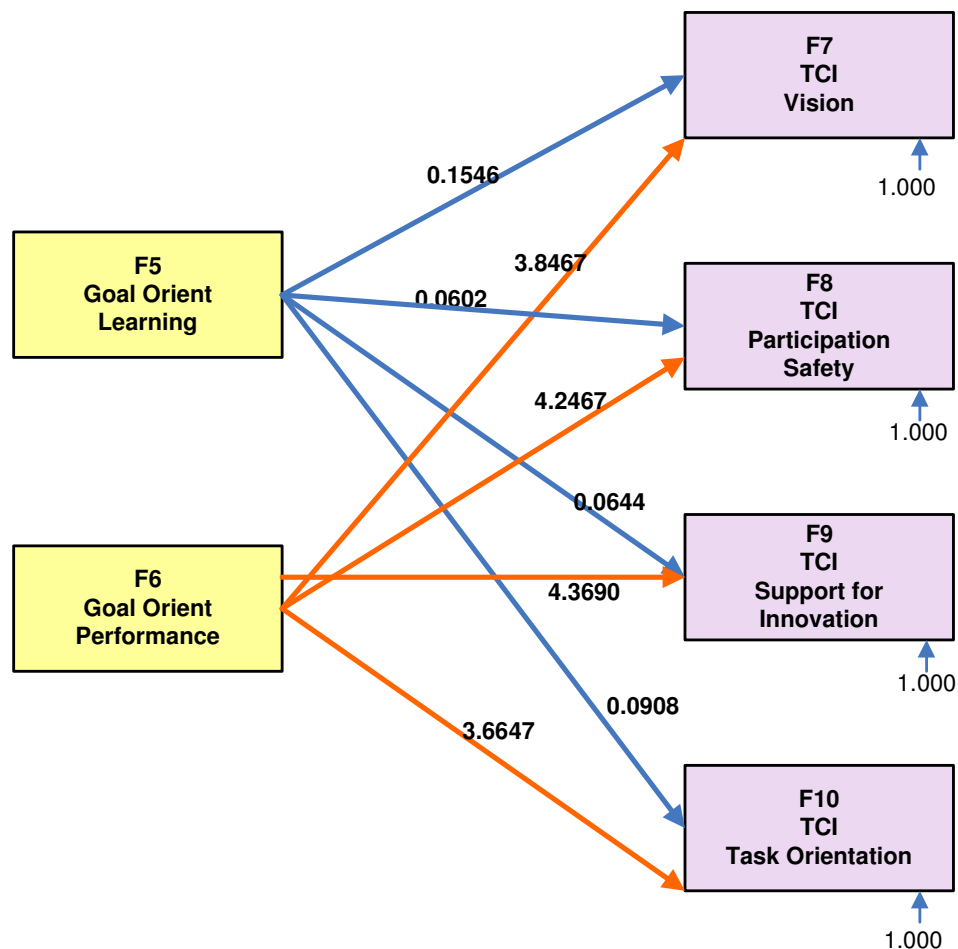
No clear previous research results were available to motivate the inclusion of goal orientation as variable in the research conceptual model. It was argued that based on available theory it will probably be easier to convince individuals with a learning goal orientation to meet higher team goals and to look for more innovative solutions to difficult problems, than it would be to influence individuals with a performance goal orientation to do the same. Again the correlation results indicated very weak relationships and again this was the reason why this variable was not included in the bigger model analysis. Based on the positive results that were achieved when the emotional intelligence and team climate model was developed, it was decided to analyse the goal orientation and team climate relationship as a separate model. As can be seen, in Table 4.20 the goodness of fit results are actually good except for the RMR that should be closer to 0 and is therefore weak. However, the path analysis based on the

diagonally weighted least square estimates showed surprising results. No causal relationship exists between a learning goal orientation and team climate, but a very strong relationship is indicated between performance goal orientation and team climate. This was surprising as the theoretical profile suggested the opposite. Possible reasons for this will be discussed in the next chapter. The goodness of fit and path analysis is depicted below:

Table 4.20: Goodness of fit: Goal Orientation in relation to TCI

Indices	Value
Fit Function	15.5337
Goodness of Fit Index	0.9970
GFI Adjusted for Degrees of Freedom	0.9967
Root mean Square Residual (RMR)	0.1049
Parsomonus GFI (Mulaik:1989)	0.9475

Figure 4.7: Path analyses Goal Orientation and Team Climate



CHAPTER 5

DISCUSSION

5.1 Introduction

In this chapter the results of the study will be discussed in relation to the research questions posed in Chapter 1. Finally, the limitations of the present study will be highlighted and possible contributions from this study towards organizational behaviour will be discussed and recommendations for future research will be made.

5.2 Research Question One

“What is the relationship between emotional intelligence, team member exchange, goal orientation and team climate?” The relationships between these variables are interpreted from the correlation Tables 4.15 and 4.16 in the previous chapter.

All the constructs reflect adequate to strong internal correlations among their respective factors, the only weak exception being TMX Exchange with TMX Cohesiveness (.1735).

If a coefficient value range of between .25 and .80 is regarded of intermediate value as suggested by Bailey (1982), only team member exchange has a significant relationship of moderate strength with team climate. When the interrelationship of the four constructs is ignored, (fd1 to fd4), then the Pearson’s Correlation Coefficient matrix in Table 4.15 is further proof that only Team Member Exchange has a moderate to reasonable correlation with Team Climate.

If the two factors of the strongest correlations (TMX Meetings with TCI-Vision:0.539 and TMX Meetings with TCI Support for Innovation:0.536) are analysed in relation to their individual questionnaire questions, it becomes clear that the relationship supports the results discussed above. The relationship Team Member Exchange (TMX Factor 1: Meeting) with Team Climate (TCI Factor 1: Vision) is based on responses to the following questions:

Team Member Exchange “Factor 1 – Meetings”

“Our team meetings are good for expressing my ideas”;

“Our team meetings are valuable participation opportunities”;

“Our meetings are practical ways of keeping oneself informed”, and

“Our team meetings resolve tension and conflicts in our team”.

These questions should be seen in relation to questions in the factor Team Climate “Factor 1 - Vision”:

- “We have a we-are-together attitude in the team”;
- “We all influence each other”;
- “People in the team feel understood and accepted by each other”;
- “Everyone’s view is listened to, even if it is in a minority”;
- “There are real attempts to share information throughout the team”, and
- “The team members keep regular contact with each other”.

The second relationship worth mentioning is the correlation between TMX Factor 1: Meetings and TCI Factor 3: Support for Innovation (F9 in the correlation matrix). This relationship links responses on questions like:

Team Member Exchange “Factor 1 – Meetings”

- “Our team meetings are good for expressing my ideas”;
- “Our team meetings are valuable participation opportunities”;
- “Our meetings are practical ways of keeping oneself informed”, and
- “Our team meetings resolve tension and conflicts in our team”.

These questions are correlated with the following questions from Team Climate, Factor 3: Support for Innovation:

- “Assistance in developing new ideas is available within the team”;
- “The team is open and responsive to change”;
- “People in this team are always searching for fresh, new ways of looking at problems”;
- “In this team we take the time needed to develop new ideas”;
- “Members of the team cooperate in order to help develop and apply new ideas”, and
- “We share information in the team rather than keeping it to ourselves”.

These correlations strengthen the notion that a team meeting is a vehicle to influence perceptions of the team members, which is the focus of the study. However, this deduction is only based on the existence of a correlation relationship between factors and cannot be used as an indication of causality (Kline, 1998).

It was surprising that emotional intelligence does not have a stronger correlation with the other variables. The correlation between emotional intelligence and team member exchange is very weak except for the slightly better, but still weak, correlation with team member exchange factor, “Cohesiveness” (.304). Understanding each other and the ability to influence

other people's emotions are two abilities that should support the cohesiveness factor of team climate well.

It was therefore expected from theory and empirical results that emotional intelligence would have more and stronger correlations with the other constructs, especially with team member exchange, which was not the case. These results urged the researcher to develop a path analysis with only emotional intelligence as independent variable and team climate as dependent variable. This resulted in a very good model that corresponds well with the theory. With reference to Figure 4.6 the causal relationship between emotional intelligence and team climate, the factor "support for innovation" is the strongest with a value of 0.9223 and the relation with the factor "vision", is the weakest but still strong with a value of 0.7319. The causal link to the factor "support for innovation" can be motivated because of the influencing nature of emotional intelligence. The relationship with the factor "task orientation" and "participative safety" can easily be motivated on grounds of some of the questions included in these two factors:

"My colleagues and I monitor each other in order to maintain a higher standard of work";
Members of the team do build on each other's ideas in order to achieve the best possible outcome";
"We all influence each other";
"People in the team feel understood and accepted by each other";
The team members interact frequently with each other".

The results support the key aspects of the factor that individuals with emotional intelligence abilities will understand, control and influence their own and the emotions of their fellow team members and therefore confirm the conceptual research model's guidelines that emotional intelligence predicts team climate. This deduction is however made outside the context of the rest of the original model and is made with caution.

It was also expected that goal orientation would reflect a correlation at least between Learning (GO) and Support for Innovation (TCI) as indicated by theory, but the result did not realize. The goal orientation factor "performance" is the only goal orientation factor, of which its non-correlation with any of the other factors is congruent with theory. In accordance with theory, "a performance orientation might be less beneficial for innovative behaviors on the job." (Janssen & van Yperen, 2004: 370). This is because individuals with a performance goal orientation experience a situation that require innovative action as threatening as it implies a risk which potentially will require them to display weakness.

It is difficult to explain the fact that there are no correlation between a learning goal orientation and any of the factors of team climate. When referring to the final selected model 3 (Figure

4.4), each team climate factor indicates a disturbance coefficient of 1.00, which suggests that other influencing factors exist, which play a mediating role on the factor, but that they are not accounted for in the model. This may refer to the influence that learning goal orientation has on team climate, but cannot be reflected due to the complexity of the model.

5.3 Research Question Two

The second question to guide the research was “What is the predictability of emotional intelligence, team member exchange, goal orientation on team climate as outcome variable?”

According to the causal path analysis results (Figure 4.4. Path analysis model 3), emotional intelligence moderately contributes to the prediction of team climate with coefficients of 0.3373 to team climate (Vision) and a weaker 0.2623 to team climate (Task orientation), respectively. These causal relationships have not been studied before as far as could be established. However, the role that emotional intelligence has in predicting team climate and specifically the factor “Task orientation”, can cautiously be related to Bar-on’s empirical evidence that there is significant correlation between emotional intelligence and occupational performance (Bar-on, 2003). This is further supported by Goleman’s view that the social competence of emotional intelligence enhances the individual’s skill for collaboration and cooperation. Emotional intelligence further creates group synergy in pursuing collective goals (Goleman, 1998) in the team context, as the factor “Task orientation” in team climate of innovation suggests it should. The causal relationship result between emotional intelligence and team climate does not contribute to the influencing of team members idea as much as was anticipated when the research conceptual model (Figure 1.1) was developed. Perhaps the suggested intervening role of team member exchange between emotional intelligence and team climate should have been highlighted and researched more.

The finding that team member exchange (TMX) does not contribute to the prediction of all four factors of team climate index (TCI), as was anticipated, is surprising. The TMX factor “Meeting” does predict TCI “Vision” moderately (0.2186). However, it reflects a negative causal relation with TCI-Task orientation (-0.1079). The results suggest that TMX “Exchange” contributes strongly (1.0167) towards the causal relation with TCI-Vision and even stronger towards TCI “Participation Safety” (1.5128), and (1.455) to Support for Innovation and finally (1.2304) in relation with TCI “Task orientation”. This relation is of importance as it confirms the focus of the study that perception within the team can be influenced and that team member exchange acts as interacting vehicle. The factor TCI “Participation safety” represents this we-are-together attitude, which is achieved by real attempts to share information and – more importantly – understanding and influencing each other in team context (Anderson & West, 1994; Ford & Seers, 2006; Mason, 2006). This causal relationship is (not surprisingly) also the strongest of them all.

The factor TMX "Cohesiveness" has no causal relationship with any of the factors of team climate of innovation, as the results are statistically insignificant. Of the three TMX factors, only TMX exchange, contributes significantly towards team climate of innovation. This factor represents a willingness to interact with fellow team members and recognizes reciprocal interaction (Seers 1998).

The relationship between goal orientation (GO) and TCI can be reported in two ways. Firstly, the coefficient with which the GO factor "Learning" predicts the TCI factor "Support for Innovation" is very weak (0.0537), with an equally weak prediction of TCI "Task orientation" (0.078). This result is not in congruence with the theoretical prediction. A learning orientation supports the development of new ideas in a team. Team members' urge to share resources and their support of each other's ideas for change, and their enthusiasm to keep each other informed, should be predicted by a goal orientation of learning (Button *et al.* 1996). However, the results do not support this assumption and no realistic reason can be offered for it. Secondly, the prediction of TCI "Task orientation" by the performance goal orientation is also statistically insignificant (0.0762). However, as the results reflect, a performance orientated predisposition would normally not be associated with seeking new ideas and an eagerness to investigate possibilities of change and be open to share with the rest of the team (Tuckey, Bruwer & Williamson, 2002). Someone with a predominantly performance goal orientation would normally not be considered an influencing factor in changing perceptions of fellow team members, and therefore this relation is in congruence with the theory. However in comparison with goal orientation's first factor "Learning", this result may be by chance.

5.4 Research question three

"Is there a combination of EI, TMX, GO that predicts team climate of innovation better than one alone and if so, what is the best combination?"

In retrospect, this question was already answered by the results of questions one and two. The results unfortunately only reiterated that the best combination is that of model three. Refer to Figure 4.4. Path Analysis Model 3, and its Goodness of fit result. This result suggests that the combination of TMX-Exchange with weak support of Emotional Intelligence predicts team climate the best of the available options.

5.5 Research question four

This question requires an answer on the significance of the relation between team member exchange and team climate alone. In order to answer this question, another model was developed to reflect this relationship only. Refer to Figure 4.5 Path Analysis TMX and TCI as

well as its goodness of fit in Table 4.20. All five goodness of fit indices reflect a good fit to the data. This result strongly confirms the finding that TMX-Exchange is the only one of the three TMX factors with any causal relationship with team climate of innovation. This finding can be linked to the results that Drach-Zahavy and Somech (2001) obtained when they studied the role of team processes and structures in understanding team innovation. Their results indicated that heterogeneity, as structure influence, is important in understanding team innovation. However, they found that team interaction processes outweighed heterogeneity in predicting team innovation. The current study does not focus on team innovation as such but rather on the perception of team climate. Yet, with great caution, the resemblance of the results can be compared in that interaction processes seem to be of great importance in predicting team climate.

The TMX factor “Meetings” has no causal relationship with any of the four TCI factors. In fact, “Meeting” has four strong negative links with TCI. This means that on its own, “Meetings” does not contribute in any way to predicting team climate. No other study’s results contradict this finding as far as could be established. TMX “Meeting”, on the other hand, has a strong internal predictive relation with TMX “Exchange (0.7974). This relation seems to suggest that an atmosphere can be created in a team meeting within which team members may feel free to share information with fellow team members and that exchange may take place freely. The meeting is therefore the place where reciprocal exchange takes place and where, through interaction, members assist and give each other feedback on behaviour, where perceptions are influenced and where new ideas are offered as solution to problems in order to achieve team goals (Cole *et al.*, 2002; Drach-Zahavy & Somech, 2001). Seers *et al.*, (2001) support this finding with their result that team members develop the ability to influence others through interactions in their exchange relationships.

TMX “Exchange” further has a predictive relation with the last TMX factor, “Cohesiveness”. Cole *et al.*, (2002) emphasized their view that exchange is not a substitute for cohesiveness in the team, but exchange is rather the facilitating factor to enable cohesiveness. There is conclusive empirical evidence that team member exchange is positively linked to cohesiveness, which supports this finding (Ford & Seers, 2006; Seers, Petty & Cashman, 1995; Seers, Ford, Wilkerson & Moormann, 2001).

According to the results, TMX-“Exchange” strongly (0.7660) predicts TCI-“Vision”. Vision further has a disturbance coefficient of 0.669, meaning that it has other unnamed causal factors with a significant influence on it. Vision represents the notion that the team’s objectives are clearly defined, shared and valued among the team members and the extent to which the objectives are achievable (Anderson & West, 1994). The result that “Vision” is strongly predicted by “exchange” is confirmed by existing empirical results. Shared agreement among team members on aspects like team objectives are achieved through common

language and frequent interaction, which is experienced as joint learning (Klein, Conn, Smith & Sorra, 2001; Loo, 2002; Mathisen, Einarsen, Jorstad & Bronnick, 2004). The interaction through feedback and discussion, which are key components of exchange, bring commitment under team members to achieve the team's set objectives (Drach-Zahavy & Somech, 2001). It can therefore be concluded that the strong prediction of TCI-"Vision" by TMX-"Exchange" is supported by existing empirical results.

The second factor of team Climate Index –"Participation safety" is also strongly predicted by TMX-"Exchange" (1.253). It is actually the strongest causal relation between exchange and the four factors of TCI. Participation safety implies a team environment which is non-threatening and in which team members can participate in the decision-making processes and mutually share new ideas without the fear of being ignored or overruled. It is theoretically sound to assume that frequent interaction with team processes encouraging reciprocal exchange should have a safe participative environment. Seers *et al.* (1995) found that team member exchange reinforces the role identity of its members, which reflects meaningfulness of the team in its members' eyes. Teams with a high level of exchange between its members normally use currencies of exchange like contribution to team activities, loyalty, affect and professional respect, which could all be linked to a safe participation environment (Cole *et al.* 2002). The fact that TMX-"Exchange" has a direct link to TMX-"Cohesiveness" as discussed above, further supports participative safety inside a team. Pirola-Merlo, Härtel, Mann and Hirst (2002) believe that a safe participative environment can also be described as a team environment with a strong affective component. Cole *et al.* (2002) support this view and express it as exchange inside the team without the expectation of reciprocity, which is given as unsolicited support.

The causal link of TMX-"Exchange" with the third factor of TCI-"Support for Innovation" is equally strong (1.146). This relationship means that any exchange within the team strongly influences their innovative environment. Therefore, the higher the level of exchange inside the team, the higher the level of innovation support will be. Loo (2002) describes support for innovation as the way that a team evaluates, accepts or rejects the introduction of new and improved ways of doing things. Although the particular model does not indicate an internal causal relationship between the four factors of the Team Climate Index construct, it should be assumed that the factors could not be considered in isolation. When considering an atmosphere of support for innovation inside a team, the way the team allows safe participation and the way the team deals with their objectives are integrally part of the way it will consider the introduction of new ideas in its processes and procedures.

There is enough empirical evidence to strengthen the causal relationship between "exchange" and "support for innovation". Mathisen *et al.* (2004) list some factors present in an innovative team as a commitment to challenging objectives, appropriate feedback processes in the

team, a non-threatening environment, high risk taking and a leniency to permit errors. Although they did not research the relation between exchange and innovation as such, Drach-Zahavy and Somech (2001) see exchange of information inside a team as a vehicle to more complete and accurate specifications of needs and to articulate expectations more realistically, which in their opinion are two important factors in any innovation process. Dunegan, Thierney and Duchon (1992) long ago found that interaction in the work group significantly predicts employee perception of climate factors, which, to their interpretation, foster innovative activities.

Already covered in the discussion was the relationship between “Exchange” and “Vision” in creating a willingness in the team to set challenging objectives as well as the relationship between “Exchange” and “Participation safety” in creating a non-threatening environment to accommodate all team members' views and opinions about team activities and specifically introducing new ideas and new ways of achieving team objectives. The result indicated a strong positive causal relation between TMX-“Exchange” and Team Climate Index (TCI)-“Support for Innovation” and is therefore in agreement with other empirical results.

The last relation, between TMX-“Exchange” and TCI-“Task orientation”, is very strong, with a coefficient of 1.084. Task orientation further has a disturbance factor of 0.5075, indicating other unnamed factors that have a causal influence on it. Task orientation reflects team members' approach to their task. It reflects processes within the team that team members implement to monitor their performance with a view to maintaining a high standard. This evaluative process asks critical questions to ensure high quality outputs but also to identify weaknesses in their production processes. A high level of task orientation should also link to a high level of synergy inside the team.

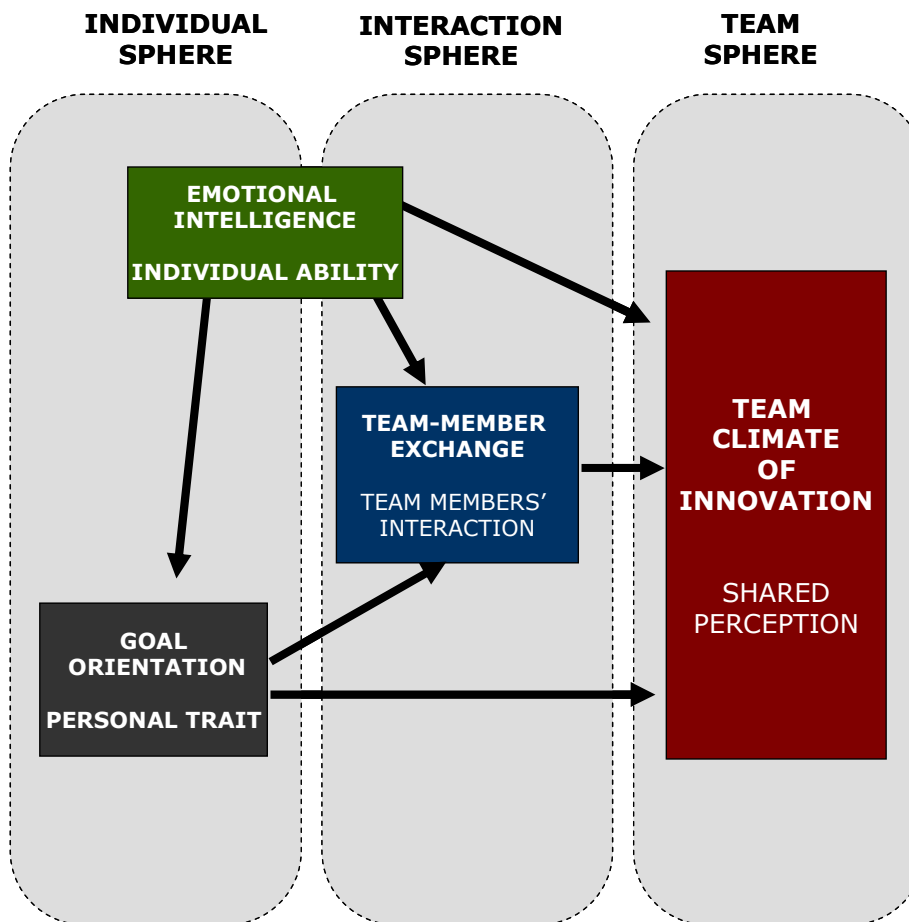
The results reflect that TMX-“Exchange” predicts TCI-“Task Orientation”. The more team members exchange opinions, information, new ideas, or suggestions on possible change in work procedures, the more team members will critically challenge their work processes and the more they will try to eliminate any weaknesses that might negatively impact on quality output. This result is in congruence with earlier empirical results. Loo (2002) found that teams with positive interpersonal relations among team members (exchange) also have team members who are enthusiastic about their projects (attitude towards their task) and an expectation of quality work (drive for quality output). Loewen and Loo (2004) found that team climate is enhanced when team members interact and when they are committed to achieving positive team outcomes and when there is qualitative reflection about team processes. One can therefore conclude that TMX-Exchange shows a statistically significant prediction of TCI-Task orientation and that this result is supported by existing results. It further means that team member exchange as an independent variable significantly predicts team climate as dependent variable.

5.6 Research question five

The last research objective was set to build a Structural Equation Model to predict team climate. The discussion in paragraph 4.9 described the reasons why a structural equation model could not be developed. Instead, a Path Analysis Model was built to try and answer the research questions. It was decided that the third model, Figure 4.4, be accepted as the model that best predicted team climate.

The initial research conceptual model was developed with the idea that there are individual activities that are present in the individual sphere. It was proposed that these individual orientated activities, like emotional intelligence and goal orientation, influenced TMX in the interaction sphere, which then acted as mediating factor towards team climate. The model further reflected that emotional intelligence and goal orientation influence team climate directly as a shared perception without the mediating influence of TMX. The initial conceptual model is again included here as Figure 5.1 to indicate the guideline thoughts for the research.

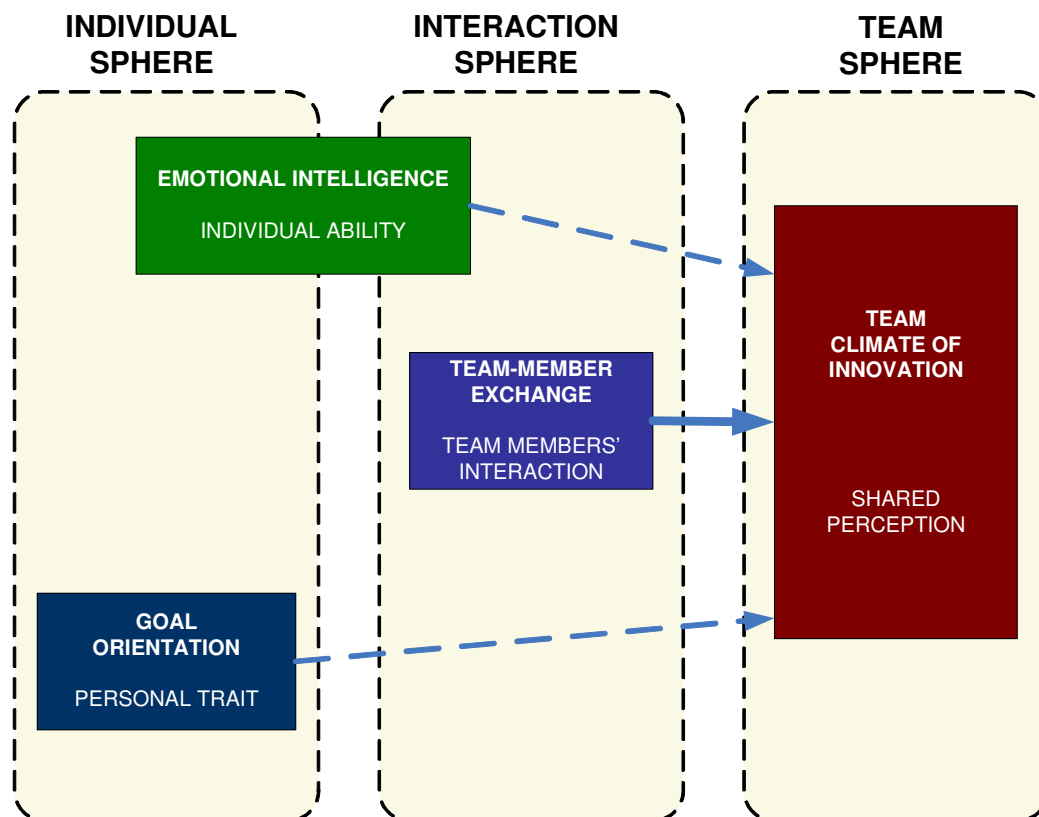
Figure 5.1: Initial conceptual model



The results of the study unfortunately did not support the assumptions of this proposed model. The model that was eventually accepted, Figure 4.4, indicate that TMX does not play the mediating role that it was initially proposed to do. The direct links from the individual sphere to the team sphere are unfortunately too weak to base any generalisations on and can therefore not be taken as predicting factors.

It is perhaps of value to illustrate this result in a high level model that can be compared with the initial conceptual model. It should be remembered that this new proposed model is based on the interpretation of the current results, but owing to the reasons discussed it could not be processed into a structural equation model. This new model is therefore again speculative although less so than the initial one. This model now reflects a strong prediction relation from TMX on team climate and a very weak link from emotional intelligence and goal orientation on team climate. The assumption that exchange is influenced by emotional intelligence and goal orientation cannot be supported by the results and is as such reflected in the model.

Figure 5. 2: New proposed model



Statistically no valid reason can be offered why goal orientation and emotional intelligence have no direct influence on team climate. However it makes sense if the two variables in the

individual sphere (refer to different spheres in the conceptual model), emotional intelligence and goal orientation, are rather linked to team member exchange only. Individual attributes will probably not be able to influence team sphere ability without the mediating influence of the interaction sphere. This aspect was tested in a separate model, but the results were not promising and were therefore not included in this study. The lack of a strong correlation between the two individual sphere variables and team member exchange further strengthened the decision not to include this proposed model in this study.

In spite of this difficulty, the overall objectives set in chapter one were achieved. It was confirmed that team member exchange predicts team climate. This will lead to a shared perception, which will influence behaviour.

It was indicated that there is no prediction relation between goal orientation and team climate. An assumption can be made that the influence of goal orientation will probably only realizes with-in the interaction phase. This could unfortunately not be confirmed.

The importance of a cohesive team within a healthy team climate for organizational success was reiterated.

5.7 Limitations of the present study

A possible limitation of the present study is the fact that the sample was too small to support significant statistical results. Although a sample size of 190 is not considered small, the conceptual research model was perhaps too ambitious to test against such a sample size.

The questionnaire provided to the respondents was perhaps too long. The questionnaire consisted of four different scales and together with the seven biographical questions, the respondents were required to complete 112 questions. Apart from the covering letter, the respondents had no other instructions to complete the questionnaire.

Secondly, the effect of poor sample selection was underestimated. The pressure of finding a large enough sample overshadowed the non-negotiable prerequisite to find a sample that represented the intended population.

Contrary to the theoretical framework for emotional intelligence and the expected results, emotional intelligence only had a weak relationship with team climate. The expected strong relationship with team member exchange did not materialize. Although a very weak correlation exists between emotional intelligence and team member exchange, a far stronger relationship was anticipated. This result may be due to the specific emotional intelligence measure of Schutte *et al.* (1998) that was used. This specific instrument is based on a single factor, and the confirmatory factor analysis confirmed this one factor structure. Perhaps

another emotional intelligence measure with a more prominent and discriminating factor structure would have resulted in a better correlation with team member exchange and team climate, although this conclusion is purely speculative.

5.8 Contributions of the present study

The main contribution of this study towards Organizational Behaviour is the confirmation of the relationship between team member exchange and team climate. The results confirmed exchange in the team as an influencing force on team climate perceptions.

The team member exchange (TMX) construct is a relatively old construct (Seers, 1989) and yet not much research has been done on TMX since then. Apart from Seers as well as Cole *et al.* (2001), only a few other research efforts on TMX can be quoted, of which Seers (1989), Seers *et al.* (1995), Seers *et al.* (2001), Cole *et al.* (2002) and Ford & Seers (2006) are the most important contributions. Research over the past 40 years on the leadership role have changed from a leader-member relationship towards a team-based, team member relationship where the consensus seeking process or with-in agreement was the focus of information exchange inside a team. This fact was confirmed by the current study.

TMX was initially constructed to define the individual team member perception of his role within the team (Seers, 1989). Ford and Seers (2006) changed the focus of the construct when they found that TMX partially predicts within agreement on climate. The Team Climate Index (TCI) was developed by Anderson and West (1994) as a measure to indicate team members' perception of the climate of innovation they work in. Anderson and West (1994) identified the factors for TCI as vision, participative safety, support for innovation and task orientation. The results of the current study significantly indicate that TMX as exchange process within teams strongly influences the perception of team members on the climate of innovation within their team as measured by the TCI instrument.

The results further emphatically illustrate that the team members' individual goal orientation does not influence their participation in the team exchange as initially anticipated. There was a weak correlation between the factor "meeting" of TMX and "learning" of goal orientation. This was too weak to be included in the path analysis. This correlation, however, highlights an important and surprising contribution in as far as it can be concluded that team member exchange processes within team meetings will guide individuals' willingness to participate in the exchange process rather than the individual's dispositional goal orientation.

Emtional intelligence was included in the initial conceptual model due to the theoretical possibility of it influencing behaviour. This assumption is based on the emotional intelligent ability to understand own and others emotions and to control own and influence others

emotions. The assumption then was that if you could through emotional intelligence influence others emotions, their perception and therefore a shared perception could also be influenced.. However, there is no specific empirical evidence available to base this assumption on. The inclusion of emotional intelligence into the initial model was at first based on common sense that if one has the ability to understand and influence others emotions, it should be reasonable to accept that someone's perception may also be influenced. The model based on the correlations (Figure 4.1) did not support this view. However, this model was built on the view that team member exchange should be an intervening factor between emotional intelligence and team climate. When this argument was removed and a model was formed by only considering the influence of emotional intelligence on team climate (Figure 4.6) the "common sense" assumption was confirmed. This result could unfortunately not be included as the final results was only based on the strong relationships that was based on the correlation results. The emotional intelligence team member exchange and team climate for innovation correlation was very weak and therefore not considered. Emotional intelligence can thus play a role in the influence process of team climate, but to test this will need another frame of reference.

5.9 Possible significance for organizations and teams.

Based on the confirmed result that team member exchange predicts a shared perception among team members and that this constitutes a climate perception, the following may be of significance to organizations and teams in particular:

A healthy team climate can be identified by a shared perception on the different team climates (climate of safety, climate of organizational support, climate of innovation etc.), which means a higher consensus basis in the team. Team members build on each other's ideas during their regular meetings to benefit the team alone. No individual agenda is tolerated. This opens the opportunity that team members are clear about the mutually agreed goals, and team members understand their team goals better. The vision for the team is shared among the team members and it is aligned with the vision of the rest of the organization. Team members are prepared to question the status quo of the work standard and there is agreement for continuous improvement through innovative thinking. Each member is aware that his or her perception influences others' perception and this is exploited for the good of the team.

The shared perception with-in the team is of particular benefit during change management interventions. The change process can be done faster with sustainable results. There is no need for a period to persuade members of the necessity to change. This need was already identified with-in the team and all members' perception about this was influenced to the benefit of the team. There will be a mutually agreed "we-are-together" feeling in the team.

If a team's climate is negative, the exchange and influence process within the team is not effective. This will probably be evident during team meetings if they are held at all, and there will not be any participation safety during these meetings. Team members will not value each other's opinion. There will not be a shared vision and the team will not challenge any tasks or standard. New appointees will not feel welcome or understood in the team and the voiced opinions will not be in support of the team or organization.

Teams should be sensitized about the potential of a shared perceptions and if need be, trained to exploit the value of well structured meetings where full participation is encouraged and where emotional intelligence abilities are fully used. This means that members will control their own emotions, they are able to understand others emotions or will make use of the opportunity to learn how to do this. They will importantly also influence each other's emotions and perceptions for the good of the team.

What does this all mean to an organization? There are numerous team building theories and team development instruments available to organizations to ensure that teams operate efficiently. There are ideal team role combinations and ideas how to enhance leadership skills. However, selecting team members onto the team who are able to influence the climate of the team will make a difference on the team's outcomes. Based on the ideal characteristics of a team with a healthy shared perception as described above and the essence of the different items of the three factors of the Team Member Exchange Quality (Seers, 1989) taken into account, the characteristics of an team member who can influence the climate of the team can be listed as follows:

- A willingness to complete a task originally assigned to someone else and a willingness and flexibility to switch jobs with other team members;
- A willingness to volunteer to do extra work to help others in the team;
- An ability to suggest better work methods;
- An ability to communicate well with team members and who will be easy to communicate to and have the ability to express his/her ideas effectively;
- A person who can be trusted and who are able to reciprocate trust
- Who is not someone who prefers to work on his/her own, but who has a preference to work within a team;

Team members with the above mentioned characteristics would help enhance a team climate in contrast to members of a work group where a coordinator or work group leader coordinates individual contributions and where members are not contributing to the cohesiveness or shared perceptions of a team. The assemblage of a team should therefore be thought through carefully with the above-mentioned characteristics in mind.

A second result that should interest organizations is the strong causal link of TMX "Exchange" with the third factor of TCI namely "Support for innovation". This means that the character

which is represented by the cluster of items identified as ‘Exchange’ has a strong influence on the character of the cluster of items representing “support for innovation”. The exchange characteristics are the same as listed above (flexible to switch jobs with team members, suggest better work methods, volunteer to do extra work for others, willing to finish work assigned to others) and it was proven that these characteristics also influence the factor of TCI, identified as “support for innovation”. Exchange behaviour will therefore positively influence behaviour that supports innovation (actions like assistance in developing new ideas, team is open and responsive to change, new and fresh ways of looking at problems, team take time to develop new ideas, people in the team cooperate to help develop and apply new ideas, members provide and share resources, members provide practical support for new ideas). Exchange behaviour will now influence team climate and as such also the willingness to support innovative behaviour.

Lastly organizations should take notice of the strong influence that the same exchange factor has over the TCI factor “Task orientation”. This factor reflects processes within the team that team members implement to monitor their performance with a view to maintain a high standard.

Organizations should therefore identify team members who meet the ideal exchange characteristics as indicated above, knowing that through their behaviour they will strongly influence the team’s shared perception and therefore team climate, they will positively influence behaviour that supports innovation and they will influence task orientation as an effort to maintain or enhance a high working standard.

5.10 Recommendations for future research

It was established with statistically significant results that team member exchange has a causal relationship with team climate, which means that team member exchange contribute to a shared perception among team members. This result confirmed only part of the conceptual research model. The expected contribution of emotional intelligence towards team climate did not realize. No acceptable justification for this fact can be offered. The Emotional Intelligence Scale that was used in the study has only one factor with 33 items loading onto the one factor. This scale produced excellent result in certain studies, but it was also criticized for the single factor structure. This study may be repeated to confirm that emotional intelligence indeed does not play the prominent role in the prediction of team climate that was anticipated. It may also result in a conclusion that the role of emotional intelligence is over-estimated and that the results of this study will then be confirmed.

Goal orientation was also included in the conceptual research model as an individual goal orientation predisposition that will influence team member exchange and also team climate as

such. The expectation was that a learning goal orientation would significantly predict team climate and particularly the factor “support for innovation”. The fact that this did not realize was surprising. This result should be research again as it did not correlate with goal orientation theory.

The research results indicated that apart from the exchange factor’s (TMX) strong relation with TCI-“Vision”, some other factors are also influencing vision (refer to the disturbance coefficient of 0.669). Although no clear proof of this exists through this study, the influence of either emotional intelligence or goal orientation on “vision” may shed some light on this apparent influence. The answer to this relationship may be of significance to organizations as teams with an aligned vision are more productive and efficient.

It may also be of value to test the influence of emotional intelligence and goal orientation on team member exchange as mediating variable and not directly on team climate as was done in this study. Referring to the Conceptual Research Model (Figure 1.1) the influence of individual sphere variables on the interaction sphere instead of directly onto the team sphere may be the solution for the lack of relationships between emotional intelligence, goal orientation and team climate.

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ANNEXURE A



University of Pretoria

Pretoria 0002, South Africa

Direct Telephone: (012) 420-4595

Direct Telefax: (012) 420-5895

E-Mail: simon.kotze@up.ac.za

11 January 2006.

Dear Respondent,

The survey contained in this document is an investigation into different variables in the workplace. I would appreciate your participation in this survey, as every response adds value to the study.

This questionnaire is divided into different sections dealing with different aspects of work. Every section will be preceded with different instructions. Please follow the instructions as carefully as possible and answer all questions. There are no right or wrong answers to these questions as they are only intended to determine your perceptions on the different aspects. If any question/item is unanswered, it will unfortunately render your questionnaire unusable.

Your co-operation in completing this questionnaire is appreciated very highly. Your answers will be treated as strictly confidential. You need not reveal your identity or that of your company. The data obtained will be used solely for research purposes.

If you are interested in receiving feedback about the findings of this research, please complete the response request section at the end.

Thank you for your participation.

Simon Kotzé
PhD Student
Department of Human Resources Management
Faculty of Economic Sciences and Management
Room 8/15
Agricultural Sciences Building
UNIVERSITY OF PRETORIA
Pretoria

012-420-4595 (Office)

012 420-5895 (Fax)

Section A.

Directions: After deciding whether a statement is generally true for you, use the 5-point-scale to respond to the statement.

Please circle the *1* if you *strongly disagree* that this is like you; the *2* if you *somewhat disagree* that this is like you, the *3* if you *neither agree nor disagree* that this is like you, the *4* if you *somewhat agree* that *this* is like you, and the *5* if you *strongly agree* that this is like you.

There are no right or wrong answers. Please give the response that best describes you:

1 = strongly disagree

2 = somewhat disagree

3 = neither agree nor disagree

4 = somewhat agree

5 – strongly agree



	STRONGLY DISAGREE			STRONGLY AGREE			FOR OFFICE USE ONLY		
1 I know when to speak about my personal problems to others.	01	02	03	04	05		A1		1
2 When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	01	02	03	04	05		A2		2
3 I expect that I will do well on most things I try	01	02	03	04	05		A3		3
4 Other people find it easy to confide in me.	01	02	03	04	05		A4		4
5 I find it hard to understand the non-verbal messages of other people.	01	02	03	04	05		A5		5
6 Some of the major events of my life have led me to re-evaluate what is important and not important.	01	02	03	04	05		A6		6
7 When my mood changes, I see new possibilities	01	02	03	04	05		A7		7
8 Emotions are one of the things that make my life worth living	01	02	03	04	05		A8		8
9 I am aware of my emotions as I experience them	01	02	03	04	05		A9		9
10 I expect good things to happen	01	02	03	04	05		A10		10
11 I like to share my emotions with others	01	02	03	04	05		A11		11
12 When I experience a positive emotion, I know how to make it last	01	02	03	04	05		A12		12
13 I arrange events others enjoy	01	02	03	04	05		A13		13
14 I seek out activities that make me happy	01	02	03	04	05		A14		14
15 I am aware of the non-verbal messages I send to others	01	02	03	04	05		A15		15
16 I present myself in a way that makes a good impression on others	01	02	03	04	05		A16		16



	STRONGLY DISAGREE			STRONGLY AGREE			FOR OFFICE USE ONLY		
17 When I am in a positive mood, solving problems is easy for me	01	02	03	04	05		A17		17
18 By looking at their facial expressions, I recognize the emotions people are experiencing	01	02	03	04	05		A18		18
19 I know why my emotions change	01	02	03	04	05		A19		19
20 When I am in a positive mood, I am able to come up with new ideas	01	02	03	04	05		A20		20
21 I have control over my emotions	01	02	03	04	05		A21		21
22 I easily recognize my emotions as I experience them	01	02	03	04	05		A22		22
23 I motivate myself by imagining a good outcome to tasks I take on	01	02	03	04	05		A23		23
24 I compliment others when they have done something well	01	02	03	04	05		A24		24
25 I am aware of the non-verbal messages other people send	01	02	03	04	05		A25		25
26 When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself	01	02	03	04	05		A26		26
27 When I feel a change in emotions, I tend to come up with new ideas	01	02	03	04	05		A27		27
28 When I am faced with a challenge I give up because I believe I will fail	01	02	03	04	05		A28		28
29 I know what other people are feeling just by looking at them	01	02	03	04	05		A29		29
30 I help other people feel better when they are down	01	02	03	04	05		A30		30
31 I use good moods to help myself keep trying in the face of obstacles	01	02	03	04	05		A31		31
32 I can tell how people are feeling by listening to the tone of their voice	01	02	03	04	05		A32		32



	STRONGLY DISAGREE			STRONGLY AGREE			FOR OFFICE USE ONLY		
33 It is difficult for me to understand why people feel the way they do	01	02	03	04	05	A33		33	

(Schutte et.al., 1998)

Section B.

Consider the statements below and decide whether you agree or disagree with the statement made. Use the scale on which a “1” indicates strongly disagree and a “7” indicates strongly agree to answer each item. Circle the number next to the item to indicate your response.

Strongly Disagree

Strongly Agree

1 2 3 4 5 6 7

There are no right or wrong answers. Please give the response that best describes you:

		STRONGLY DISAGREE				STRONGLY AGREE				FOR OFFICE USE ONLY		
1	Our team meetings are good for expressing my ideas.	01	02	03	04	05	06	07	B1		34	
2	Our team-meetings are valuable participation opportunities.	01	02	03	04	05	06	07	B2		35	
3	Our team-meetings are practical ways to keep informed.	01	02	03	04	05	06	07	B3		36	
4	Our team-meetings resolve tension and conflict.	01	02	03	04	05	06	07	B4		37	
5	My team-members are hard to communicate with.	01	02	03	04	05	06	07	B5		38	
6	My team has a strong sense of togetherness.	01	02	03	04	05	06	07	B6		39	
7	My team-members generally trust each other.	01	02	03	04	05	06	07	B7		40	
8	My team lacks team spirit.	01	02	03	04	05	06	07	B8		41	
9	I often suggest better work methods to others.	01	02	03	04	05	06	07	B9		42	
10	My team-members let me know when I affect their work.	01	02	03	04	05	06	07	B10		43	
11	I let my team-members know when they affect my work.	01	02	03	04	05	06	07	B11		44	
12	My team-members recognize my potential.	01	02	03	04	05	06	07	B12		45	
13	My team-members understand my problem.	01	02	03	04	05	06	07	B13		46	
14	I am flexible about switching jobs with my team-members.	01	02	03	04	05	06	07	B14		47	
15	I often ask others for help.	01	02	03	04	05	06	07	B15		48	
16	I often volunteer extra help towards my team-members.	01	02	03	04	05	06	07	B16		49	



	STRONGLY DISAGREE				STRONGLY AGREE				FOR OFFICE USE ONLY		
17 I am often willing to finish work assigned to others.	01	02	03	04	05	06	07	B17		50	
18 My team-members are often willing to finish work assigned to me.	01	02	03	04	05	06	07	B18		51	

(Adapted from Seers, 1989)

Section C.

Please indicate how true each of the following items is for you. Use the scale on which a “1” indicates strongly disagree and a “6” indicates strongly agree to answer each item.

Circle the number next to the item to indicate your response.

Strongly Disagree

Strongly Agree

1 2 3 4 5 6

		Strongly Disagree				Strongly Agree		FOR OFFICE USE ONLY	
1	I prefer to do things that I can do well rather than things that I do poorly	01	02	03	04	05	06	C1	52
2	I'm happiest at work when I perform tasks on which I know that I won't make any errors.	01	02	03	04	05	06	C2	53
3	The things I enjoy the most are the things I do best.	01	02	03	04	05	06	C3	54
4	The opinions others have about how well I can do certain things are important to me.	01	02	03	04	05	06	C4	55
5	I feel smart when I do something without making any mistakes.	01	02	03	04	05	06	C5	56
6	I like to be fairly confident that I can successfully perform a task before I attempt it.	01	02	03	04	05	06	C6	57
7	I like to work on tasks that I have done well in the past.	01	02	03	04	05	06	C7	58
8	I feel smart when I can do something better than most other people.	01	02	03	04	05	06	C8	59
9	The opportunity to do challenging work is important to me.	01	02	03	04	05	06	C9	60
10	When I fail to complete a difficult task, I plan to try harder the next time I work on it.	01	02	03	04	05	06	C10	61
11	I prefer to work on tasks that force me to learn new things.	01	02	03	04	05	06	C11	62
12	The opportunity to learn new things is important to me.	01	02	03	04	05	06	C12	63



13	I do my best when I'm working on a fairly difficult task.	01	02	03	04	05	06	C13		64
14	I try hard to improve on my past performance.	01	02	03	04	05	06	C14		65
15	The opportunity to extend the range of my abilities is important to me.	01	02	03	04	05	06	C15		66
16	When I have difficulties solving a problem, I enjoy trying different approaches to see which one will work.	01	02	03	04	05	06	C16		67

(Button, Mathieu and Zajac, 1996)

Section D

Indicate on a seven point scale the degree to which you agree with the following statements (1 = lowest level of agreement, 7 = very strong (fully agree/fully applicable). Circle the number next to the item to indicate your response.

	Very Very Weak Strong							FOR OFFICE USE ONLY			
1. How clear are you about what your team objectives are?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1			68
2. To what extent do you think your team objectives are useful and appropriate objectives?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2			69
3. How far are you in agreement with these objectives?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3			70
4. To what extent do you think other team members agree with these objectives?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D4			71
5. To what extent do you think your team's objectives are clearly understood by other members of the team?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D5			72
6. To what extent do you think your team's objectives can actually be achieved?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D6			73
7. How worthwhile do you think these objectives are to you?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D7			74
8. How worthwhile do you think these objectives are to the organization?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D8			75
9. How worthwhile do you think these objectives are to the wider society?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D9			76
10. To what extent do you think these objectives are realistic and can be attained?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 0			77
11. To what extent do you think members of your team are committed to these objectives?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 1			78
12. Do your team colleagues provide useful ideas and practical help to enable you to do the job to the best of your ability?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 2			79
13. Do you and your colleagues monitor each other so as to maintain a higher standard of work?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 3			80
14. Are team members prepared to question the basis of what the team is doing?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 4			81

15. Does the team critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 5			82
16. Do members of the team build on each other's ideas in order to achieve the best possible outcome?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 6			83
17. Is there a real concern among team members that the team should achieve the highest standards of performance?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 7			84
18. Does the team have clear criteria which members try to meet in order to achieve excellence as a team?	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 8			85
19. The team is always moving toward the development of new answers	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D1 9			86
20. Assistance in developing new ideas is available	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 0			87
21. The team is open and responsive to change	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 1			88
22. People in this team are always searching for fresh, new ways of looking at problems	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 2			89
23. In this team we take the time needed to develop new ideas	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 3			90
24. People in the team cooperate in order to help develop and apply new ideas	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 4			91
25. Members of the team provide and share resources to help in the application of new ideas	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 5			92
26. Team members provide practical support for new ideas and their application	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 6			93
27. We share information generally in the team rather than keeping it to ourselves	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 7			94
28. We have a 'we are together' attitude	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 8			95
29. We all influence each other	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D2 9			96
30. People keep each other informed about work-related issues in the team	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 0			97
31. People feel understood and accepted by each other	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 1			98



32. Everyone's view is listened to, even if it is in a minority	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 2			99
33. There are real attempts to share information throughout the team	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 3			100
34. There is a lot of give and take	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 4			101
35. We keep in regular contact with each other	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 5			102
36. We interact frequently	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 6			103
37. We keep in touch with each other as a team	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 7			104
38. Members of the team meet frequently to talk both formally and informally	0 1	0 2	0 3	0 4	0 5	0 6	0 7	D3 8			105

(Anderson & West, 1994).

Section E.

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1	Respondent number	E1			106

The following questions request biographic and lifestyle information. Responses will be used purely for statistical purposes only

Draw an X in the appropriate block next to the item that most closely represents your personal situation. Mark one item per question only.

		FOR OFFICE USE ONLY							
1	Age (in years)	<input type="text"/>	E2 <input type="text"/> <input type="text"/> 107						
2	Gender	<table border="1"> <tr> <td>Male</td> <td><input type="text"/></td> <td>01</td> </tr> <tr> <td>Female</td> <td><input type="text"/></td> <td>02</td> </tr> </table>	Male	<input type="text"/>	01	Female	<input type="text"/>	02	E3 <input type="text"/> <input type="text"/> 108
Male	<input type="text"/>	01							
Female	<input type="text"/>	02							

3 Qualification (mark highest level attained only)

Secondary school	1	<input type="text"/>	E4 <input type="text"/> <input type="text"/> 109
Gr 12 or equivalent	2	<input type="text"/>	
Post school certificate/diploma	3	<input type="text"/>	
Nat Diploma/Nat Higher Diploma	4	<input type="text"/>	
Bachelors degree or equivalent	5	<input type="text"/>	
Honours degree or equivalent	6	<input type="text"/>	
Masters degree or equivalent	7	<input type="text"/>	
Doctoral degree or equivalent	8	<input type="text"/>	

4 Number of employees in your organization?

Between 20 and 100	1	<input type="text"/>	E5 <input type="text"/> <input type="text"/> 110
Between 100 and 500	2	<input type="text"/>	
Between 500 and 1000	3	<input type="text"/>	
More than 1000	4	<input type="text"/>	



Number of individuals in your work
5 group/team (under the same
supervisor/team leader)?

E6		111
----	--	-----

Please indicate with an X, your role in the work group/team as either leader or member by marking the appropriate box beneath

6

LEADER

01	
02	

MEMBER

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E7		112

Indicate the nature of your work by marking the most appropriate box beneath:

Technical	Managerial	Administrative
01	02	03

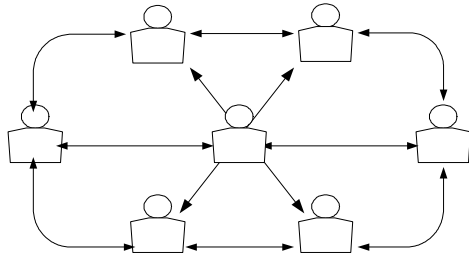
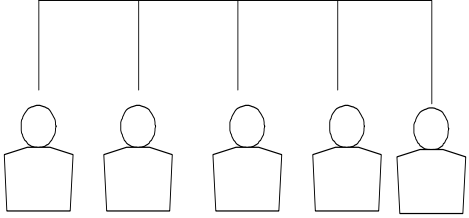
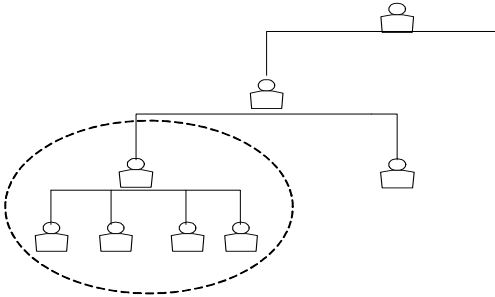
FOR OFFICE USE		
E8		113

7. Please turn the page and select one of the five team structures illustrated that represents your team's structure the best. Mark the selected structure in the appropriate box.

01	THE MATRIX TEAM	
	"Cross functional expertise on high impact projects".	

02	THE VIRTUAL TEAM	
	"Geographically separated and works across boundaries of space and time".	

4

03	THE PROJECT TEAM	
	<p>"One main task to complete by a certain date and then disband".</p> <p>5</p>	
04	THE SELF-MANAGED TEAM	
	<p>"Fully empowered. Set own work schedule and can hire and fire".</p> <p>6</p>	
05	THE WORK TEAM	
	<p>"Hierarchical structure, parallel to the structure of the bigger organization".</p>	

FOR OFFICE USE		
E9		114

THANK YOU FOR YOUR PARTICIPATION

If you are interested in receiving feedback with regard to the outcome of the study,
please complete the section below.

Name: (not compulsory)
Address:
E-Mail Address:

You may leave this slip attached to your questionnaire, or should you prefer to
separate the slip from the questionnaire you can mail it to:

S.L. Kotzé
Faculty of Natural and Agricultural Sciences
UNIVERSITY OF PRETORIA
PRETORIA
0001

ANNEXURE B



University of Pretoria

Direct Telephone: (012) 420-4595

Direct Telefax: (012) 420-5895

Pretoria 0002, South Africa

E-Mail:simon.kotze@up.ac.za

11 January 2006.

Me A T Ngutshane
Human Resources Executive
arivia.kom
Sunninghill
JOHANNESBURG

Dear Me Ngutshane,

SUPPORT FOR PhD RESEARCH STUDY

Please refer to a discussion between Mr Dirk Wessels and myself in this regard. Thank you for the opportunity to explore the possibility for your organization to participate in this research.

I am in the process of completing a PhD in organizational behaviour. I now need organizations who are willing to be part of this research and who will grant me permission to conduct a survey for this purpose.

I am trying to determine through my research whether a team climate of innovation can be predicted by individual factors like emotional intelligence, team-member exchange and goal orientation. To gather the data, a set of documents consisting of four different questionnaires

was compiled. Each questionnaire has a self-explanatory instruction and it should take someone approximately 45-60 minutes to complete the set of documents.

The questionnaires are completed anonymously and your organization will not be identified. If you approve that this research may be conducted at your organization, a written confirmation of your approval, should be returned to me by e-mail or fax at the address indicated above. I need this approval to assure the Ethics Committee of the university that this research was done scientifically and with the approval of the different organizations. Please also indicate the name of the contact person in your organization to whom all future communication in this regard should be addressed.

It is anticipated that this research will contribute to the body of knowledge of team climate and team-member interaction in general. A team climate for innovation is an individual perceived phenomenon, and it is supposed that such a team climate may be influenced by different individual variables. Depending on the results of the study, a more effective composition of a team may be one of the outcomes that can be expected. Any questions that you might have pertaining the research and possible outcome will be answered with pleasure.

Thank you for your assistance in this regard.

With best wishes,

Simon Kotzé
PhD Student
Department of Human Resources Management