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3 Emotional intelligence and the person environment

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ABSTRACT

The main objective of this research was to establish a model for emotional intelligence as a determinant of organisational climate. This model should help companies and organisational psychologists to better understand the interrelatedness of the two constructs in order to optimally enhance organisational performance. This research was conducted in a large organisation, utilising a large sample (n = 1 612) of employees in the financial services industry.

During the first phase of this research, emotional intelligence was conceptualised from literature research within the trait paradigm and organisational climate as a molar construct. A theoretical model of emotional intelligence as a determinant of organisational climate was developed and suggested a link to organisational output.

During the second phase of this research (empirical research), assessment instruments for emotional intelligence (the Gerber Emotional Intelligence Scale) and organisational climate (the High Performance Climate Questionnaire) were developed and validated. Thereafter an assessment instrument for work output was designed to test the link with performance.

The structural equation model (SEM) produced a new best-fitting model of emotional intelligence, organisational climate and work output. The model indicates that emotional intelligence does not correlate with work output as expected, but organisational climate does correlates moderately with work output and explains almost 40% of the variance in work output. The strongest influence seems to flow from teamwork and management. The regression weights between emotional intelligence and organisational climate were trivial, although the model fit indices were all within an acceptable range.

The researcher attributed the lack of support for the model to the characteristics of the employees of this type of organisation and concluded that emotional intelligence should not be seen as a determinant of organisational climate in this specific financial services sector.

The results further indicate that significant differences exist between the organisational climate experiences of four biographical categories (race, position level, age and geographical region) and also for the categories of position level and age for work output. These differences need to be considered when developing future interventions.

This research contributes towards a comprehensive understanding of the relationship between emotional intelligence, organisational climate and work output. The three newly developed questionnaires and the SEM could help researchers and practitioners to apply the research model in other industries and subsequently improve organisational outputs.

Key terms:
Emotional intelligence, trait emotional intelligence, ability emotional intelligence, emotions, intelligence, emotional intelligence models, organisational climate, psychological climate, group climate, organisational culture, competing values framework, organisational climate model, validation, structural equation model (SEM) testing

CHAPTER 1: SCIENTIFIC BACKGROUND

1.1 INTRODUCTION

The purpose of this chapter is to provide an overview of the research to follow. The background to and motivation for this research will be presented with reference to the value of the constructs of emotional intelligence and organisational climate. The problem statement will be presented and the general aim and specific aims of this research will be derived. The research design will be presented and then prioritised to form the structure that will be followed throughout the thesis.

1.2 BACKGROUND TO AND MOTIVATION FOR THE RESEARCH

The constructs of emotional intelligence and organisational climate are prominent in the field of industrial and organisational psychology, one of the sub-disciplines of psychology.

During the past decade, many experts, managers and researchers have devoted much attention to the construct of emotional intelligence (Bagher, Seysd, & Sayed, 2011). This attention was sparked by early claims of Goleman (2001) that emotional intelligence can affect individual success and is linked to organisational performance and productivity in the workplace.

Despite the popularity of the construct of emotional intelligence, no single definition was accepted in the literature, giving rise to different paradigms and operationalisations of emotional intelligence. One popular paradigm views emotional intelligence as an ability, while another regards it as a trait (Petrides, 2011). These two main streams of thought from which research is conducted could lead to fragmentation over time and demand greater integration of research on the construct.

Similar to the literature of emotional intelligence, Dulewicz and Higgs (2000) and Cherniss (2010) confirmed positive links between organisational and individual *success factors* and emotional intelligence. These findings emphasise the importance of the construct of organisational climate for organisational effectiveness.

Research links emotional intelligence to effective leadership and shows that it can be cultivated (Cherniss, Grimm, & Liautaud, 2010; Dulewicz & Higgs, 1999; Goleman, 1996). This is of great significance to organisations because it would thus be theoretically possible to select employees who exhibit advanced levels of emotional intelligence or to develop such capacity in the organisation to increase its effectiveness and performance.

Organisational climate, the other prominent construct relevant to the topic of this research, has been researched extensively and its first application dates back to 1939 (Lewin, Lippit, & White, 1939). More recent research focused strongly on the link between organisational climate and organisational outcomes (Car, Schmidt, Ford, & DeShon, 2003). James, Choi, Ko, McNeil, Minton, Wright, and Kim (2008) indicate that organisational climate influences individual and organisational outcomes. These linkages between organisational climate and the organisational bottom-line indicators are important to consider from an organisational effectiveness perspective.

The researcher is of the opinion that a comprehensive integration of organisational climate research into an organisational climate model could help to increase understanding of the possible link to emotional intelligence.

Organisational climate constitutes more than the mere mechanical summation of individual perceptions. The construct represents a gestalt, where climate at a higher level (group climate or organisational climate) is more than the sum of its parts. When the influence of emotional intelligence on organisational climate is argued from a theoretical perspective, the existing body of knowledge suggests that emotionally intelligent individuals may contribute (through the recognition and effective use of

emotions) to the gestalt of climate through the generation of more positive perceptions, feelings and attitudes about the organisation (Bardzil & Slaski, 2003).

It is now well documented that people's perceptions influence their future behaviour, and also that positive emotions are linked to personal success factors. An individual's ability to identify his/her own emotions and those of others accurately, as well as having a sound knowledge of emotions and the ability to effectively manage his/her emotions to facilitate desired thought processes could therefore be used to form, communicate and share positive perceptions, attitudes and feelings about significant aspects of his/her work environment that would facilitate work performance. Similarly, an inability to work emotionally intelligently could lead to negative perceptions, attitudes and feelings about significant aspects of the organisation and could inhibit work performance.

It is therefore likely that abilities to appraise and to deal effectively with emotions in the workplace would significantly and positively influence ***collective*** perceptions, feelings and attitudes about the organisation.

Although it makes intuitive sense that emotional intelligence could influence organisational climate, and although some research may support this notion, little is known in general about the relationship between the constructs and specifically about this relationship in the organisation in which this research was conducted. An authentic theoretical and empirically tested model of emotional intelligence as a determinant of organisational climate could provide insight into *how* employees could be selected or developed to improve organisational climate, in order to increase organisational effectiveness.

From the above, the researcher identified a need to integrate current emotional intelligence research into a new theoretical model that could be used to conceptualise emotional intelligence. This model could be used to select or develop an emotional intelligence assessment instrument and to interpret assessment results arising from the empirical part of this research. Similarly, current research on the construct of

organisational climate needed to be integrated into a new model of organisational climate to conceptualise the construct. This model could then be used to select or develop a suitable organisational climate instrument and to interpret the results yielded by the empirical part of this research. A theoretical integration of the above two models would provide a theoretical model of emotional intelligence as a determinant of organisational climate. This would lay a solid foundation for an empirical investigation into the relationship between the two constructs.

This research should contribute to a better understanding of emotional intelligence, organisational climate and the influence of emotional intelligence on organisational climate in the international arena. A better understanding of the above-mentioned should enable organisational developers, human resource development practitioners and talent acquisition practitioners to select and develop employees appropriately for improving on the organisation's overall climate, by means of which its bottom-line will be impacted positively.

1.3 PROBLEM STATEMENT

The organisation in which this research was conducted has been in a process of organisational transformation for the last 15 years. Much effort has been focused on the modernisation of technology, organisational processes and the organisation's interface with external clients.

During these organisational development interventions, organisational climate measurements were done, benchmarks were created and interventions were designed to improve organisational climate, following the organisational strategy as a blueprint. The purpose of these interventions was ultimately to increase organisational effectiveness.

In separate organisational processes employees were selected and developed, following talent acquisition, talent optimisation and leadership development strategies

(among other things) that would include targeting emotional intelligence as a part of the strategy.

The organisation in which this research was conducted could benefit from a theoretical conceptual model that views emotional intelligence as a determinant of organisational climate in order to understand whether emotional intelligence interventions have an effect on organisational climate and work outputs. If emotional intelligence is indeed a determinant of organisational climate, future organisational development interventions could benefit from integrating various emotional intelligence interventions into an organisational development strategy. Further, prior knowledge about the interaction between emotional intelligence and biographical and demographical variables, as well as organisational climate and biographical and demographical variables would be useful in order to select interventions in which strong links exist to achieve the maximum cost benefit from these.

The research questions are set out below.

With regard to phase 1, the literature study, the following questions were relevant:

- *How can emotional intelligence be conceptualised into a theoretical model?*
- *How can organisational climate be conceptualised into a theoretical model?*
- *How can a model be conceptualised that views emotional intelligence as a determinant of organisational climate?*

With regard to phase 2, the empirical investigation, the following questions were relevant:

- *Can work output be measured validly and reliably with the Work Output Questionnaire?*

- *Do significant differences exist between the work output of different biographical and demographical categories?*

- *Can emotional intelligence be measured validly and reliably with the Gerber Emotional Intelligence Scale (GEIS v1.3)?*

- *Does emotional intelligence influence work outputs?*

- *Do significant differences exist between the emotional intelligence of different biographical and demographical categories?*

- *Can organisational climate be measured validly and reliably with the High Performance Climate Questionnaire (HPCQ v1.3)?*

- *Does organisational climate influence work outputs?*

- *Do significant differences exist between the organisational climates of different biographical and demographical categories?*

- *Can emotional intelligence be seen as a determinant of organisational climate?*

1.4 AIMS

With reference to the research questions, the following general and specific aims were formulated for this research:

1.4.1 General aim

The general aim was to derive a model for emotional intelligence as a determinant of organisational climate.

1.4.2 Specific aims

With regard to phase 1, the literature study, the following specific aims were formulated:

- *To conceptualise emotional intelligence into a theoretical model*
- *To conceptualise organisational climate into a theoretical model*
- *To conceptualise a theoretical model that views emotional intelligence as a determinant of organisational climate*

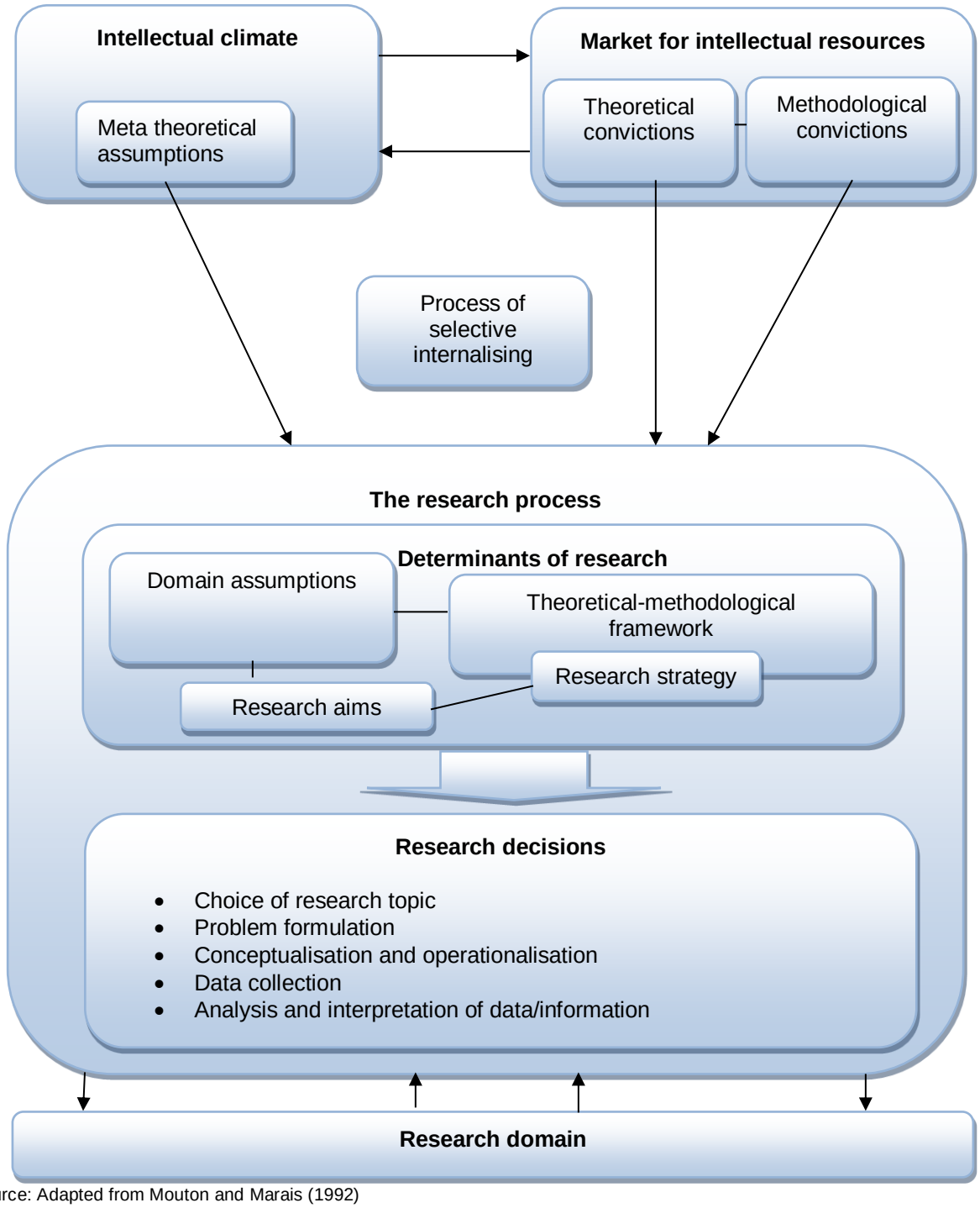
With regard to phase 2, the empirical research, the following aims were formulated:

- *To test the statistical validity and reliability of the Work Output Questionnaire*
- *To establish statistically if significant differences exist between the work output of different biographical and demographical categories*
- *To test the statistical validity and reliability of the Gerber Emotional Intelligence Scale (GEIS v1.3)*
- *To establish statistically if emotional intelligence influences work outputs*
- *To establish statistically if significant differences exist between the emotional intelligence of different biographical and demographical categories*
- *To test the statistical validity and reliability of the High Performance Climate Questionnaire (HPCQ v1.3)*
- *To establish statistically if organisational climate influences work outputs*
- *To establish statistically if significant differences exist between the organisational climate of different biographical and demographical categories*

- *To establish statistically if emotional intelligence can be regarded as a determinant of organisational climate*

1.5 RESEARCH MODEL

The integrated research model for the social sciences as proposed by Mouton and Marais (1992) was used in this research. Figure 1.1 below is a diagrammatical representation of the model.



Source: Adapted from Mouton and Marais (1992)

Figure 1.1: Integrated research model

Mouton and Marais (1992) identifies five dimensions that provide context to a research project in terms of the paradigm and disciplinary origin. The above mentioned integrated research model rest on these dimensions.

In the *sociological dimension* of Mouton and Marais (1992), this research should contribute to the existing pool of knowledge in the field of emotional intelligence and organisational climate. It may be viewed as an ongoing sociological process that facilitates a better understanding of the constructs of emotional intelligence and organisational climate.

According to Mouton and Marais (1992), the *ontological dimension* refers to the research domain. The research domain for this research was restricted to the emotional intelligence of employees and their perceptions, attitudes and feelings about their organisation (organisational climate).

In Mouton and Marais' (1992) *teleological dimension*, the emphasis is on new knowledge that becomes available through research, in this case about the two constructs and their integration. Little is currently known internationally about the integration of the two constructs.

This research is expected to make new knowledge available, not only to the organisation in which the research was conducted, but also in the field of industrial and organisational psychology internationally.

The *epistemological dimension* refers to the "search for truth" (Mouton & Marais, 1992). During this research, a high premium was placed on the use of valid and reliable measurement instruments, as well as the collection and manipulation of information on a sound scientific basis. This methodology ensured that the results of this research would portray a true reflection of practical reality.

The *methodological dimension* refers to the logic in the decision-making process during research (Mouton & Marais, 1992). Throughout this research, a strong emphasis was placed on objectivity to contribute to the validity of the research results.

1.6 THE PARADIGM PERSPECTIVE

With reference to the paradigm perspective, Mouton and Marais (1992) make a distinction between the intellectual climate and the market for intellectual resources.

1.6.1 The intellectual climate

The disciplinary focus of this research was on industrial and organisational psychology. The relevant sub-discipline was organisational psychology.

Industrial and organisational psychology studies individuals and groups in the organisational context to facilitate a better understanding, prediction and utilisation of human capital in the organisation to maximise organisational efficiency and effectiveness.

The paradigm relation is set out below.

Phase 1, the literature study, will be presented from the humanistic paradigm. The assumptions of the humanistic paradigm are as follows:

- Every individual should be studied as an integrated, unique, organised whole, or gestalt.
- Humans are unique beings with unique characteristics that distinguish them from lifeless objects and animals. Hence conclusions about human behaviour can only be made from studies on *human* behaviour.

- Individuals are inherently good, or at least neutral, and negative, destructive behaviour is a result of bad influences from the environment rather than an inherent propensity to do bad.
- Individuals consciously experience things that happen to them and are able to evaluate these experiences. Subconscious processes do take place, especially during unhealthy functioning.
- Individuals actively participate in the determination of their own behaviour and they are not only victims of their own inherent, uncontrollable needs or external stimuli from the environment.
- Only psychologically healthy individuals can be used in research for the setting up of criteria against which human functioning can be measured (Meyer, Moore, & Viljoen, 1997).

Phase 2, the empirical investigation, will be presented from the functionalistic paradigm. The assumptions of the functionalist paradigm are as follows:

- People have a consciousness that allows them to perform certain functions. These functions enable them to adapt to their environment.
- Human consciousness is an important field of study, and the focus is rather on *how* and *why* consciousness works, than on the content of consciousness. It is therefore rather a study about the functions and processes of thought, than the structure of the elements involved.
- A relationship exists between the functions of conscious observation, thoughts, feeling and will, and behaviour directed by adaptation, and this relationship can be investigated.
- Informal introspection is used as a method to investigate a specific function of consciousness but research must also be supported by objective methods (e.g. experimentation and application of statistical techniques) (Jordaan & Jordaan, 1990).

Some meta-theoretical statements about key concepts will be presented below.

1.6.1.1 Organisational behaviour

Organisational behaviour follows the principles of human behaviour, because human resources are an important component in the organisation and influence it. An organisation must therefore view each employee as a unique array of behavioural factors (e.g. personality, ability, perceptions, motivation etc.) and treat him or her accordingly.

Organisations are viewed as social systems that form role expectations with individuals and groups. In an organisational context, the roles of the leader and his/her followers are translated to those of managers and subordinates. Systems of power, authority and status fill the needs of individuals, but also set demands for individuals in the organisation. Groups further impact on individuals as well as the effectiveness of the organisation.

Organisational behaviour originates from many factors, and behaviour in any situation depends on the interaction between personal characteristics and the characteristics of the situation. There is no best approach that will deliver success in all situations, and for this reason management factors are identified in organisational behaviour by following a situational or contingency approach.

Structures and processes influence organisational behaviour and the emergent culture. Effective managers develop their diagnostic skills to distinguish problems from symptoms and to rectify deviant organisational behaviour.

Organisational behaviour deals with human beings in the workplace and could never be as predictable or stable as the field of physics. Successful managers therefore need to balance art and science while considering all sources of information to address organisational behaviour problems. These sources may represent empirical research based on the individual, group or the organisation (Gibson, Ivancevich, Donnelly, & Konopaske, 2012).

1.6.1.2 Emotions

In the context of emotional intelligence, Salovey and Mayer (1990, p. 186) view emotions as “organised responses, crossing the boundaries of many psychological subsystems, including physiological, cognitive, motivational, and experiential systems. Emotions typically arise in response to an event, either internal or external, that has a positively or negatively valenced meaning for the individual.”

Salovey and Mayer (1990) also indicate that emotions can be differentiated from mood in so far as they are shorter and generally more intense.

1.6.1.3 Personality

Personality is an organised whole that provides meaning to the individual and is organised in patterns that are, to an extent, visible and measurable.

Personality has a biological basis, but its development is a product of social and cultural environmental influences. Personality further includes superficial aspects such as attitudes to the behaviour of team leaders, but also deeper aspects such as sentiment for power, or the Protestant work ethic.

Personality thus encompasses general and unique characteristics and individuals are therefore unique in some instances, but similar in others (Ivancevich & Matteson, 2002).

1.6.2 The market for intellectual resources

Mouton and Marais (1992) describe the market for intellectual resources as a collection of convictions that directly deals with the epistemic status of scientific

statements. A distinction is further made between theoretical and methodological convictions. Theoretical convictions refer to the nature and structure of domain phenomena, whereas methodological convictions refer to the nature and structure of research on domain phenomena.

1.6.2.1 Central research hypothesis

The higher the emotional intelligence of employees, the more positive their organisational climate will be.

1.6.2.2 Theoretical statements of the research

The following statements serve as a point of departure for the discussions in this research:

a) Conceptual descriptions

Emotional intelligence is the ability to

- appraise and express one's own emotions
- appraise and recognise the emotions of others
- regulate one's emotions
- use emotions to facilitate performance (Davies, Stankov, & Roberts, 1998)

Organisational climate is the shared perceptions, feelings and attitudes of employees towards the organisation (Coetsee, 2001).

b) Theories and theoretical models

Models not only perform a classification function, but also suggest relations between sets of data. The aims of this research suggest the importance of the models highlighted below.

A theoretical model was developed to conceptualise emotional intelligence. This model was derived from an integration of current research and the emotional intelligence model of Davies et al. (1998).

A theoretical model for organisational climate was developed to conceptualise organisational climate. The model of Wiley and Brooks (2000) was integrated with current research and attention given to practical considerations in the organisation.

1.6.2.3 Methodological convictions

Mouton and Marais (1992) describe methodological convictions as a collection of convictions regarding the nature and structure of science and scientific research. The convictions elucidated below underpinned this research.

Data collection was conducted by means of the administration of valid and reliable questionnaires to a sample of employees. During the research process, sampling was done to ensure that the sample was representative of the population.

Data analysis was done by means of recognised statistical procedures and the results interpreted when they were deemed statistically significant.

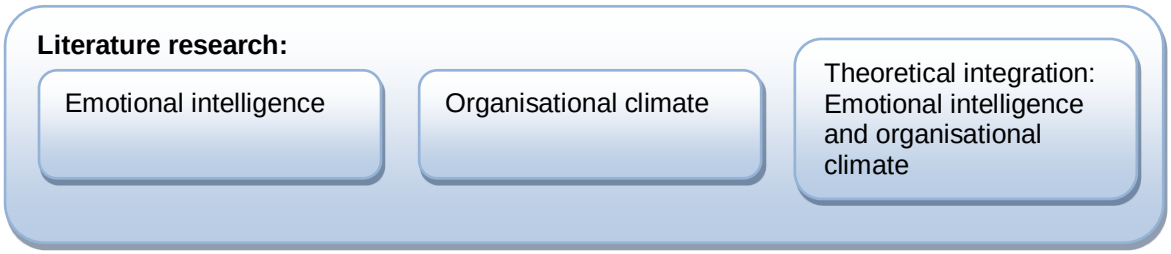
The first person refers to the researcher in his role as theorist and industrial and organisational psychologist. The second person refers to the employee in the theoretical work environment, respondent in the psychometric environment (in the empirical investigation), as well as during the interpretation of the results.

1.7 RESEARCH DESIGN

According to Mouton and Marais (1992), the purpose of the research design is to plan and structure the research project in such a way that it enhances the validity of the research findings.

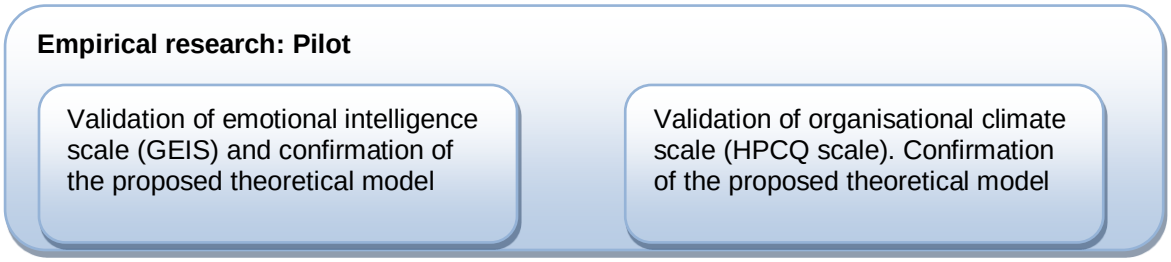
For the purposes of this research, the independent variable was emotional intelligence and the dependent variable organisational climate. The research was designed to take place in two phases. These phases are summarised in the flow diagram (figure 1.2) below.

Phase 1: Investigative research



Phase 2: Explanatory research

Step 1: Pilot research: Validation of measurement instruments



Step 2: Main research: Model testing of emotional intelligence – organisational climate model

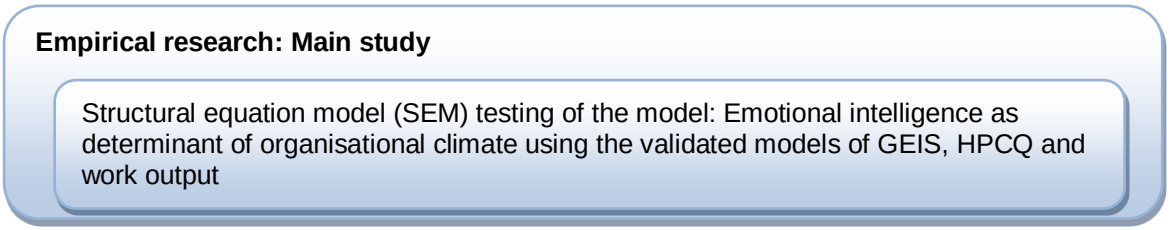


Figure 1.2: Phases of this research

Phase 1

Investigative research was done on emotional intelligence and organisational climate during the first phase of this research. The methodology that was followed was a hypothesis-generating literature study.

Phase 2

Explanatory research was done on emotional intelligence and organisational climate during the second phase of the research. This research entailed quantitative hypothesis testing.

The second phase was conducted in two steps, namely pilot research to validate the measurement instruments (for both emotional intelligence and organisational climate) and confirmation of proposed theoretical models, and the main research to verify the validity and reliability of the models in the sample, to test their relationship with work outputs, biographical and demographical variables, and to test the statistical model for emotional intelligence as a determinant of organisational climate.

Step 1: Validation of measurement instruments

The measurement instruments for emotional intelligence and organisational climate were validated during independent pilot research during which the underlying factor structure of the measurement instruments was confirmed statistically with the procedures of exploratory factor analysis. The reliability of the instruments was determined by means of coefficient alpha internal consistency calculations.

Step 2: Main study

The statistical internal consistency reliability of the emotional intelligence, organisational climate and work output questionnaires was investigated by means of an item analysis and comparison of coefficient alpha values. Thereafter the validity of the dimensional structure of the same questionnaires was investigated by means of exploratory factor analysis and confirmed by means of confirmatory factor analysis (The work output questionnaire was a smaller scale and did not require a pilot study for validation.) The relationship between emotional intelligence and work outputs, and organisational climate and work outputs, was confirmed by means of structural equation modelling (SEM). This was followed by

an investigation of the interaction between emotional intelligence and biographical and demographical variables, and organisational climate and biographical and demographical variables utilising descriptive statistical procedures and analysis of variance (where data were parametric) or the Kruskal Wallis test (where data were non-parametric).

Lastly, a model for emotional intelligence as a determinant of organisational climate was tested, utilising SEM. Refinements and improvements to the model were suggested and tested, once again utilising SEM.

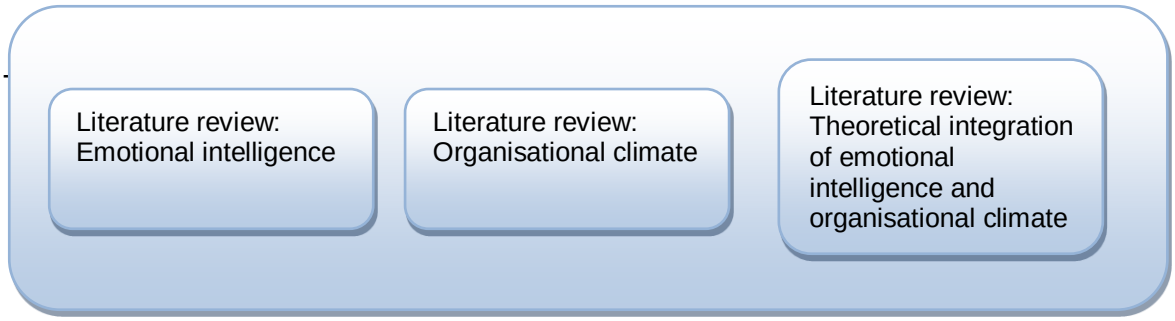
This part of the research may be regarded as being of universal importance because the researcher generalised from the sample to the population. According to Mouton and Marais (1992), research of universal importance does not only have implications for internal validity, but also for external validity. In this research internal validity was secured on a contextual level by ensuring the questionnaires were administered according to strict prescriptions, as well as using psychometrically sound instruments. External validity (generalisability) on a universal level was secured by selecting a representative and random sample and adhering to the principles underpinning the statistical techniques utilised.

For the purposes of this research, the unit of analysis was the individual. At the outset it was expected that individuals would differ from each other with regard to emotional intelligences as well as perceptions, attitudes and feelings about the organisation. Aggregate emotional intelligence and psychological climate scores were used to make inferences to group and organisational levels.

1.8 RESEARCH METHODOLOGY

The research methodology included two phases, namely a literature review and an empirical investigation. The phases and steps in the research methodology are summarised in the flow diagram (figure 1.3) below.

Phase 1: Literature review



Phase 2: Empirical investigation

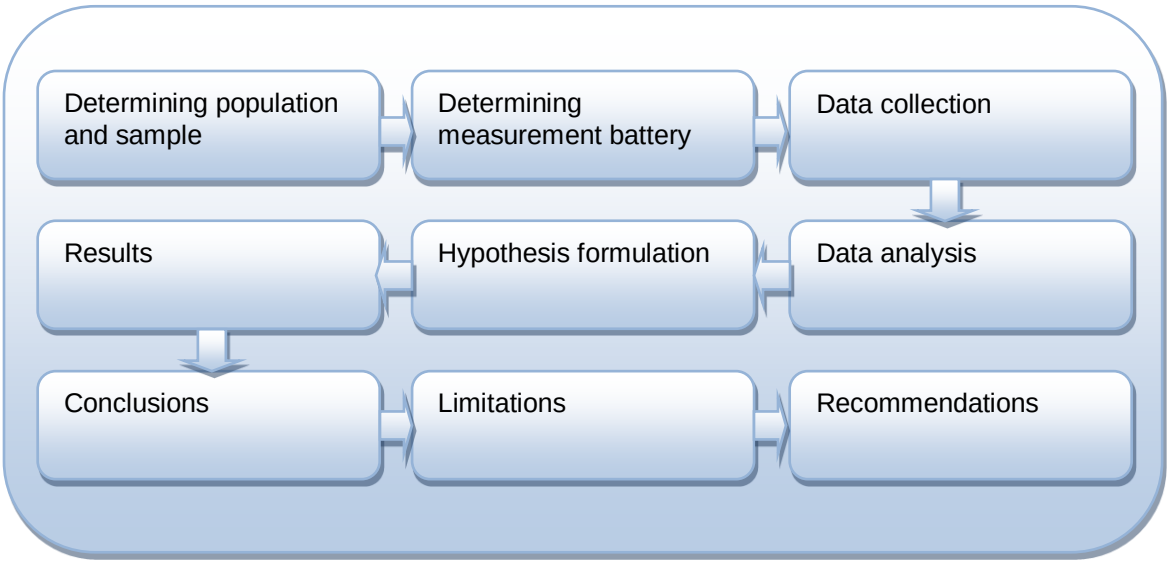


Figure 1.3: The research Methodology

1.8.1 Phase 1: Literature review

Step 1

A literature review on emotional intelligence was done from the theoretical perspective of the model proposed by Davies et al. (1998). The emphasis was on the conceptualisation of emotional intelligence, given biographical and demographical variables in the context of organisational performance.

Step 2

Payne (2000) follows the notion of Martin and Meyerson (1988) who distinguish between natural forces of integration, differentiation and fragmentation in culture-like research and indicate that each of these forces are required to contribute to growth in the body of research. The theoretical research followed Payne's call for greater integration of research in the field of organisational climate.

The literature review on organisational climate was done from the theoretical perspectives of the models proposed by Wiley and Brooks (2000). The emphasis was on the conceptualisation of organisational climate, given biographical and demographical variables in the context of organisational performance.

Lastly, the theoretical integration of emotional intelligence and organisational climate was conceptualised into a theoretical model. This model considers biographical and demographical variables and their influence on organisational performance.

1.8.2 Phase 2: Empirical investigation

This research was approved by the participating organisation as well as the ethics committee of the department of Industrial and Organisational psychology of UNISA.

Step 1: Population and sample

The population was a national organisation in the financial services sector, employing 15 557 employees.

During the pilot research, a sample of 656 employees was used to validate the emotional intelligence measurement instrument. The sampling method was dependent on the availability of employees to participate in the validation study, although an effort was made to obtain a representative, stratified random sample.

A larger sample of 1 327 employees was used to validate the organisational climate measurement instrument. Again the feasibility of a representative stratified random sample was determined by the availability of employees to participate in the validation study.

During the sampling of the main study, the aim was to obtain a large sample of responses from the organisation, hopefully in access of 1 000 responses nationally. The descriptive statistics of the sample were determined with regard to race, gender, position level, age, tenure and geographical region.

Step 2: Determining the measurement battery

From the conceptualisation of the two constructs, valid and reliable measurement instruments for emotional intelligence and organisational climate were discussed, selected and justified.

For the construct of emotional intelligence, a measurement instrument was selected or developed as informed by the theoretical perspective of the literature study. The development of a measurement instrument specifically for the organisation may contribute to higher validity of measurements, and also ensure that recent theoretical developments are incorporated into the measurement instrument. The literature study was done from the perspective of the theoretical model of Davies et al. (1998) and other relevant and recent research was also

incorporated. The reliability of the instrument was determined by means of item analysis and the comparison of Cronbach's alpha values and the validity by means of exploratory factor analysis during pilot research.

For the construct of organisational climate, a measurement instrument was selected or developed as informed by the theoretical perspective of the literature study. The literature study on organisational climate was done from the perspective of Wiley and Brooks (2000) and recent research findings and the practical environment were considered. In order to meet the above requirements in a concise instrument, the need arose for the researcher to develop a measurement instrument specifically for the organisation. The reliability of the instrument was determined by means of item analysis and comparison of Cronbach's alpha values and the validity by means of exploratory factor analysis during pilot research.

In order to investigate the link between emotional intelligence, organisational climate and performance, a work output scale was developed and included with the climate questionnaire. The reliability of the instrument was also determined by means of item analysis and a comparison of Cronbach's alpha values and the validity by means of exploratory factor analysis, but because it was on a much smaller scale, it did not require a pilot study. The analysis will be presented during the main empirical research.

Step 3: Data collection

The data for the pilot research (validation of the emotional intelligence instrument as well as the organisational climate instrument) were collected by means of an electronic survey to large representative samples under controlled circumstances at a national organisation in the financial services sector. The validation was confirmed for the emotional intelligence scale, the organisational climate scale and the work output scale during the main research.

During the main research (testing the statistical model for emotional intelligence as a determinant of organisational climate), the data of the emotional intelligence scale, the organisational climate scale and work output scale were collected simultaneously in the same organisation as for the pilot research. The data were collected in a convenience sample by means of an electronic survey throughout the organisation. An effort was made to obtain a large number of responses.

Step 4: Data analysis

Data from the newly developed measurement instruments for emotional intelligence, organisational climate and work output were used for model testing to confirm their validity. The statistical procedure of SEM was employed and the statistical package, AMOS (version 22), was utilised for these calculations.

The reliability of the emotional intelligence and organisational climate scales was determined during the pilot research by means of coefficient alphas. The statistical package, SPSS (version 22), was utilised for this analysis. The proposed theoretical models of emotional intelligence and organisational climate were statistically confirmed. The statistical package, AMOS (version 22), was utilised for these calculations.

During the main research (model testing of emotional intelligence as determinant of organisational climate) the validity of the model was tested by means of structural equation modelling (SEM).

The statistical package, SPSS, was used for the basic statistical procedures and AMOS was used for SEM.

Step 5: Hypothesis formulation

Hypotheses were formulated to propose relationships and differences between the variables. The research questions stated in section 1.3 and the research aims formulated in section 1.4 guided the research hypothesis for this research.

Step 6: Results

In later chapters of this thesis, the results will be reported and then interpreted.

Step 7: Conclusions

Conclusions about the set aims were formulated and are reported later in this thesis.

Step 8: Limitations

Limitations of the research with regard to phase 1 (literature study) and phase 2 (empirical investigation) are listed in chapter 6.

Step 9: Recommendations

Recommendations on the existing literature as well as the relevant organisation were formulated and are discussed later in this thesis (chapter 6).

1.9 CHAPTER LAYOUT

The layout of the chapters is as follows:

Chapter 1: Scientific background
Chapter 2: Emotional intelligence
Chapter 3: Organisational climate
Chapter 4: Empirical research
Chapter 5: Results
Chapter 6: Conclusions, limitations and recommendations

1.10 CHAPTER SUMMARY

The purpose of this chapter was to provide an overview of the research. The background and motivations for the research and the popularity of the construct

of emotional intelligence and the prominence of the construct of organisational climate were highlighted. The general aim was formulated as deriving a model for emotional intelligence as a determinant of organisational climate. An overview of the research design and phases of the research were prioritised. The next chapter deals with the construct emotional intelligence.

CHAPTER 2: EMOTIONAL INTELLIGENCE

2.1 INTRODUCTION

Section 1.8 in the previous chapter indicated two phases in which this research would be presented, namely phase one (the literature research) and phase two (the empirical research). This chapter focuses on step one of phase one, namely the literature research on emotional intelligence. The aim here is to conceptualise emotional intelligence into a theoretical model.

Interest in the construct emotional intelligence has grown considerably over the past decade (Lam & O'Higgins, 2012). With this increased interest, the construct has become an immensely popular topic in research and popular literature. Moreover, the research interest in emotional intelligence is leading to evidence to substantiate claims of popular literature that emotional intelligence is a distinct and valid construct, linked to important individual and organisational outcomes (Lopes, Grewal, Kadis, Gall, & Salovey, 2006; Cherniss, 2010).

Historically, the role of emotions in the workplace has been largely ignored, and when emotions (and feelings) were addressed, they were viewed as inappropriate in the work context and regarded as having a negative influence on thinking, rationality and judgement (Cartwright & Pappas, 2008).

Subsequently the above viewpoint has changed to the degree that it is now believed that emotions are necessary for effective judgement and decision making (Cartwright & Pappas, 2008). In this regard it is also known that positive moods can facilitate certain inductive reasoning processes (Sinclair & Mark, 1995). Negative moods, in contrast, may be associated with more pessimistic judgements than those in positive moods (Socală & Szentágotai Tătar, 2010).

Despite the recent popularity of the construct of emotional intelligence, it is still relatively new. Because emotional intelligence is a relatively new and complicated construct, there are differences and sometimes contradicting perspectives in its definition (Cherniss, 2010).

Salovey and Mayer (1990) maintain that although the construct of emotional intelligence is relatively new, it has deep origins that hint to the importance of emotions in intellectual functioning that were already made by Thorndike (in 1920) in his notion of social intelligence, with more proximal roots in Gardner's multiple intelligence (in 1983).

Although Goleman (1995) certainly deserves credit for popularising the construct of emotional intelligence through his best-selling book *Emotional intelligence*, much work has preceded his efforts. Theorists like Gardner (1983) and Sternberg (1985) had already laid a firm foundation for the construct. A long history in the development of the construct actually preceded their work and the sociological research dimension (indicated in chapter 1, section 1.5), becomes apparent when the first conceptualisations of emotional intelligence are traced back to Thorndike's social intelligence in 1920 (Petrides, Furnham, & Frederickson, 2004).

The popularisation and certainly the commercialisation of emotional intelligence led to an explosion of research interest. The research that followed measured (and therefore also implied the operationalisation of) emotional intelligence in different ways. One stream of research used self-report measures, focusing on *trait emotional intelligence* (sometimes also referred to as mixed models), and *emotional competence*. The other stream of research focused on the maximisation of performance and gave rise to the *ability emotional intelligence* models (Cherniss, 2010).

The above operational difference has far-reaching implications for the conceptualisation of emotional intelligence. Ability emotional intelligence is logically expected to be more closely related to (and therefore to correlate with) measures of cognitive ability (g), whereas trait emotional intelligence would not be expected to correlate as strongly with cognitive ability and instead to be more closely related to personality trait measures (Furnham, 2009).

In the next few paragraphs the construct of emotional intelligence will be defined and integrated into a comprehensive definition, emotions and intelligence will be briefly summarised individually and the etiology of emotional intelligence will be presented. Thereafter the prominent models of emotional intelligence will be clustered together as trait and ability models, compared and integrated into a new model.

The assessment of emotional intelligence has relevance to the empirical part of this research and will receive detailed attention. Because there is an argument to be made that trait emotional intelligence and ability emotional intelligence are two distinct constructs (Furnham, 2009), the differences and similarities between performance-based (ability) emotional intelligence and self-report (trait) emotional intelligence will receive attention throughout this chapter.

A summary of the interaction between emotional intelligence and the most important individual and organisational variables are presented and lastly integrated into a model of emotional intelligence.

This integrated model will be utilised to explain the empirical research findings.

2.2 DEFINITION OF EMOTIONAL INTELLIGENCE

Although the evolution of the construct emotional intelligence can be traced back to 1920, in its current form it is still a relatively new one. It becomes apparent when all the different definitions are considered that researchers have not yet succeeded in determining the boundaries of the construct.

Emotional intelligence can be defined as follows:

Davies et al. (1998) did an extensive review on the literature of emotional intelligence and developed a four-dimensional definition of it, namely:

- appraisal and expression of emotion in oneself
- appraisal and recognition of emotion in others
- regulation of emotion in oneself
- the use of emotion to facilitate performance

Undoubtedly the most widely used, scientifically acceptable definition of emotional intelligence is “the ability to monitor one’s own and other’s emotions, to discriminate among them, and to use the information to guide one’s thinking and actions” (Salovey & Mayer, 1990, p. 189).

Mayer, Caruso, and Salovey (2000a) followed the conceptualisation of Mayer and Salovey (1997) and Salovey and Mayer (1990) to define emotional intelligence as a set of interrelated skills that can be classified with the following four dimensions:

- the ability to perceive accurately, appraise, and express emotion
- the ability to access and/or generate feelings when they facilitate thought
- the ability to understand emotion and emotional knowledge
- the ability to regulate emotions to promote emotional and intellectual growth

Goleman (1998, p. 317) defines emotional intelligence as “the capacity for organizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and our relationships”.

Goleman (1995) defines emotional intelligence as any desirable feature of personal character not represented by cognitive intelligence. His definition evolved to suggest that two main facets define the competencies of emotional intelligence. They are *ability* (awareness versus management of emotion) and *target* (competence relating to self versus others). Goleman therefore views emotional intelligence along the following four dimensions (Zeidner, Matthews, & Roberts, 2004):

- awareness of emotion in self
- awareness of emotion in others
- management of emotion in self
- management of emotion in others

Bar-On (1997) renames emotional intelligence as “emotional quotient”. Emotional quotient is viewed as an assortment of 15 capabilities and competencies that influence one’s ability to succeed in coping with environmental pressures and demands that affect one’s overall psychological well-being directly.

In contrast to Mayer et al. (2000a), Bar-On (1997, p. 16) characterises emotional intelligence an “an array of non-cognitive capabilities, competencies, and skills that influences one’s ability to succeed in coping with environmental demands and pressures”.

Cherniss (2010) calls for integration and proposes the adoption of a single definition that refers to the basic abilities of emotion recognition, reasoning and regulation.

Emotional intelligence will be conceptualised for the purpose of this research along the following five dimensions:

- accurately perceiving own emotions
- accurately perceiving other's emotions
- effective use of own emotions to facilitate thought
- understanding emotions
- management of own emotions

2.3 EMOTIONS

Emotions are central to the construct of emotional intelligence and imperative to its understanding. Some researchers such as Russel (1980), Yik and Russel (2003) and Watson and Tellegen (1985) proposed models of basic emotions which conceptualise these along distinct dimensions. Other researchers, such as Ortony and Turner (1990) and Scherer (1992), favour the conceptualisation in which emotions consist of underlying more elementary units (compound process theory). The conceptualisation in this research will not enter the debate on whether "basic emotions" exist, but instead build on the practical classification of emotions from the perspective of emotional vocabulary.

Caruso and Salovey (2004) propose the use (and practice) of a comprehensive emotional vocabulary to improve the ability to better understand emotions. Their dictionary (of emotional vocabulary), although more comprehensive than the one of Goleman (1995), is similar and covers the dimensions of the circumplex model of Russel (1980) and the consensual structure of mood model of Watson and Tellegen (1985). The emotional vocabulary proposed by Caruso and Salovey (2004) is tabulated below.

Table 2.1: Emotional vocabulary

Cluster	Emotion	Related terms and phrases
Happiness	Serenity	Delight
	Happiness	Gladness
	Joy	Euphoria
	Ecstasy	Satisfaction
		Pleasure
		Amusement
		Spreading cheer
		Feeling happy for others
		Being positive
		Sharing other's joy
Acceptance	Admiration	Embrace
	Acceptance	Welcome
	Trust	Feeling confident
		Having faith
		Cherishing
		Liking
		Loving
		Adoring
		Feeling interest
Anticipation	Interest	Fascination
	Anticipation	Intrigue
	Vigilance	Attraction
		Charm
		Expectation
Surprise	Distraction	Wonder
	Surprise	Awe
	Amazement	Astonishment
		Shock
		Bewilderment
		Disbelief
		Incredulity
		Stupefaction
Anger	Annoyance	Hatred

	Anger	Irritation
	Rage	Frustration
		Malice
		Ill-will
		Fury
		Indignation
Disgust	Boredom	Revulsion
	Loathing	Being averse to
		Disliking
		Being amoral
		Behaving in a gross way
Fear	Apprehension	Dread
	Fear	Jitters
	Terror	Anxiety
		Worry
		Concern
		Trepidation
		Nervousness
		Wariness
		Edginess
		Misgivings
Sadness	Pensiveness	Dejected
	Sadness	Unhappy
	Grief	Sorrowful
		Distressed
		Anguished
		Lonely
		Blue
		Down
		“Bummed out”

Source: Caruso and Salovey (2004)

With the above emotional vocabulary in mind, the definition of emotional intelligence of section 2.2 could be restated in more practical terms:

Emotional intelligence constitutes the accurate detection of the above listed emotions in oneself and others, the effective use of these emotions to elicit/facilitate thought, the understanding of these emotions, and their effective management.

A construct of significant importance to the research of emotional intelligence is that of alexithymia, a specific disturbance in emotional processing.

Alexithymia may be translated from Greek as follows:
a = lack
lexis = word
thymos = emotions

Literately translated it would mean *a lack of words to express one's emotions*. Alexithymia is manifested in difficulties in identifying and verbalising feelings and a tendency to focus on and amplify the somatic sensations that accompany emotional arousal (Martínez-Sánchez, Ato-García, & Ortiz-Soria, 2003).

A three-dimensional structure supports the construct alexithymia. This factor structure is supported by confirmatory factor analysis and the factors are labelled as follows (Parker, Taylor, & Bagby, 2003):

- difficulty identifying feelings
- difficulty describing feelings
- externally oriented thinking

As an inability to effectively process emotions, alexithymia may be viewed as an opposite construct to emotional intelligence. From a research perspective, a strong argument exists for an inverse relationship between the constructs of emotional intelligence and alexithymia. In addition to the obvious diagnostic use of alexithymia scales, they are also extremely useful in the demonstration of the concurrent validity of emotional intelligence scales. In this regard the 20-item

Toronto alexithymia scale (TAS-20) has been used in the development and validation of Schutte's self-report emotional intelligence scale (Schutte, Malouff, Hall, Haggerty, Cooper, Golden, & Dorheim, 1998) as well as the Wong and Law emotional intelligence scale (Law, Wong, & Song, 2004). Both instruments are frequently cited self-report measures of trait emotional intelligence.

2.4 INTELLIGENCE

Mayer, Salovey, and Caruso (2008) postulate that an understanding of *intelligence* is required to fully comprehend the construct of emotional intelligence.

Spearman (as cited in Gregory, 2010) proposed a differentiation between two kinds of intelligence factors, namely a single general factor (g), and a number of specific factors (say s1, s2, etc.). Spearman concentrated on the study of the general factor (g) that overlapped between different sub-tests (specific factors) of intelligence (Gregory, 2010).

Cattell extended the theory on intelligence and proposed a hierarchical model that placed Spearman's g on the top and Thurstone's primary mental abilities (PMA) as second-order factors (Taub, 2002).

The research that followed was typically conducted in educational, business and military environments and concluded that g is the single most powerful indicator of performance (Taub, 2002). Similarly, but in a school environment, g was found to correlate between 0.5 and 0.75 with academic achievement (Taub, 2002). Although strong correlations were found, between 50% and 25% of what makes a student successful in an academic environment was still unaccounted for by traditional measures of IQ (Taub, 2002).

According to Mayer, Salovey, and Caruso (2004), theorists like Wechsler, Sternberg and Gardner had a significant influence on the field of intelligence when they called for broadening the field to include multiple specific intelligences.

David Wechsler and his colleagues produced nine intelligence tests in the period 1939 to 1991 (Gregory, 2010). Wechsler defined intelligence as an individual's aggregate or global capacity to act purposefully, think rationally and deal effectively with the environment (Gregory, 2010). Wechsler's measurement model provides three scores, namely a verbal, performance and a global score. In designing his tests, Wechsler selected a wide array of abilities underlying global intelligence and also required that subjects *do things* and not merely respond to questions (Gregory, 2010).

Gardner (1983) proposed a theory of multiple intelligences. These intelligences are linguistic, musical, logical-mathematical, spatial, bodily-kinaesthetic and personal. One should note that Gardner (1983) acknowledges that his intelligences are not separate constructs, but interrelated. Therefore a general factor could be expected even in the context of his multiple intelligences. Of significant importance to the topic of this research is Gardner's personal intelligence, something which is reminiscent of Thorndike's social intelligence. Thorndike viewed social intelligence as the ability to understand and manage people and to act wisely in social settings. At the time, the predominant theme in research on intelligence was that of a single *g* and greater openness to specific or multiple intelligences was reached only in the early 1980s, according to Mayer et al. (2008).

Sternberg (1985) also proposed a wider view on intelligence. Besides the fact that certain mental mechanisms are required for intelligent behaviour, his triarchic theory also emphasised the importance of adaptation to the real-world environment. Sternberg's (1985) theory deals with three aspects of intelligence, namely componential intelligence (the internal mental mechanisms responsible

for intelligent behaviour), experiential intelligence (the ability to deal effectively with novel tasks) and contextual intelligence (the mental activity in adapting, shaping and selection of real-world environments relevant to one's life). Ghuman (2011) argues that emotional intelligence can be viewed as a contextual intelligence that allows the individual to successfully navigate through life situations.

From the above it is evident that the single intelligence factor (g) was challenged over the years and that newer models of intelligence tend to include interaction with the real-world environment. It appears that intelligence can be best explained in terms of different types of intelligence and that one of the different types may be emotional intelligence. Emotional intelligence, defined as a type of intelligence, belongs to the realm of ability emotional intelligence and may fill an important gap in the broader theory of intelligence.

With emotional intelligence defined, and *emotions* and *intelligence* separately explained, it becomes necessary to attend to the etiology and development of emotional intelligence in order to better conceptualise the construct.

2.5 ETIOLOGY OF EMOTIONAL INTELLIGENCE

Although inconsistencies are reported, evidence is piling up in support of the notion that emotional intelligence positively influences performance (Lopes et al., 2006; Cartwright & Pappas, 2008). Consequently, a better understanding of emotional intelligence and its dimensions, origin and development can provide the insight required to improve organisational performance.

Matthews, Zeidner, and Roberts (2002) classify the etiological factors of emotional intelligence into two broad areas, namely biological determinants and socialisation.

2.5.1 Biological determinants

Kalat and Shiota (2012) maintain that emotions have a strong root in physical maturation. As infants develop, so their exposure to a larger range of richer emotions increases. The ability to walk, for example, exposes infants to new dangers, excitements, etcetera, and triggers the activation of emotional systems that were previously present but still dormant.

Matthews et al. (2002) further argue that because aspects of emotional intelligence are acquired, stored and retrieved by a biological organism, it seems reasonable to assume that there is a biological influence underlying emotional intelligence.

Although the biological view to emotional intelligence appears a logical one, it also poses some challenges. Taylor, Parker, and Bagby (in Matthews et al., 2002) point out that if emotional intelligence is (at least partly) biologically determined, the conceptual problem arises of how low emotional intelligence can then be developed.

Another related viewpoint is that of the evolution of emotions. Although hardly any support from empirical research is available in this area, a rich theory emerges out of the principles of evolutionary psychology. According to this theoretical framework, emotions are viewed as a super-ordinate programme with the function of directing the activities of sub-programmes that govern mental processes (such as perception, attention, learning, motivation, values and self-esteem) as well as physiological processes (such as heart rate, endocrine function, immune function, reflexes and motor systems) (Tooby & Cosmides, 2005).

Within this functional view of emotions, they were shaped during evolution by forces such as

- architectural change factors and natural selection
- adaptation to environmental challenges (Tooby & Cosmides, 2005)

Matthews et al. (2002) further argue for the importance of the construct of temperament in the study of emotional Intelligence. Temperament refers to the moderately stable emotional and behavioural qualities of an individual which are influenced by biological inheritance. Temperamental qualities (e.g. emotionality, adaptability and sociability) may impact on the growth and development of major facets of emotional intelligence (emotion regulation and coping with stress). Two temperamental qualities are regarded as determinants of emotional intelligence. They are emotional intensity and attentional processes. Emotional intensity (e.g. latency, threshold and rise time of emotions) makes a child more (or less) reactive to the effects of stress and attentional processes may facilitate the process of coping with stress (e.g. attentional shifting or focusing and inhibition of action).

Biological determinants predispose individuals to emotional behaviour, but the behaviour itself remains largely dependent on an elaborate set of social and environmental factors. These factors (determinants) will be discussed in the next paragraphs.

2.5.2 Socialisation of emotional intelligence

The family is commonly regarded as a primary (although not the sole) source of socialisation of emotions. Within the family structure the parents are considered to be the most influential in the inculcation of emotional competence. Parental socialisation may be carried out directly or indirectly. Direct parental socialisation is associated with activities such as regulation of the child's emotions through direct teaching efforts and informal conversations about emotional regulation.

Indirect parental socialisation takes the form of indirect influences by parents on a child, such as the observation and modelling of emotional responses and competencies (Matthews et al., 2002).

The socialisation mechanisms as discussed below may be deployed to transfer emotional competencies.

2.5.2.1 Direct observation and modelling

Direct observation and modelling of the behaviour of significant models (parents, teachers, etc.) play a pivotal role in learning social and affective responses (Bandura in Matthews et al., 2002). Children have been shown in this regard to learn and acquire new emotional responses in their behavioural repertoire through the observation of models.

Kalat and Shiota (2012) note in the latter regard, that not all emotional regulation lessons are explicit and that parents sometimes teach children without being aware. Epstein (in Matthews et al., 2002) points out that the modelling of emotions implicates teaching by example. Thus parents who display emotionally intelligent behaviour consistently in their everyday life are likely to transfer these emotional intelligence competencies through learning to their children.

Hence highly emotionally intelligent children are likely to be brought up in an environment with exemplary emotionally intelligent role models. Pivotal learning about how to process and regulate emotions, maintaining viable relationships, etcetera, then follows and is useful for the development of the child's supportive group of friends.

2.5.2.2 Training, coaching and guidance

Besides acting as a model to children, parents also serve as more formal instructors of emotional expression and regulation.

They may also choose to follow a coaching approach with regard to the emotional development of their offspring. Parental assistance with negative emotions may follow from open discussions. This assistance may take the form of teaching problem-solving abilities, goals and strategies for dealing with stressful or challenging situations that might lead to negative emotions (Matthews et al., 2002).

2.5.2.3 Reinforcement of expressive behaviours

From operant learning theory (Bandura in Matthews et al., 2002) it is known that children's appropriate behaviour (as well as emotional reactions) will be rewarded by society, and that rewards will continue over time. By contrast, inappropriate behaviours would be left unrewarded or punished, and will fade away.

Of significance is the fact that these rewards take place in a gender and cultural environment and that they may give rise to gender and emotional differences (Kalat & Shiota, 2012).

Parents will therefore intentionally or unintentionally reinforce certain emotional reactions and extinguish others.

It is clear that emotional intelligence, and emotions specifically, have a strong biological origin and are therefore part of the genetic inheritance of the individual. Emotions are presumably shaped during a long process of evolution that streamlined the functions of emotions in reaction to environmental challenges, and everyone is born with a certain capacity to process them.

Emotional intelligence entails more than the biological aspect of emotions and is also transferable through a process of (direct and indirect) socialisation. Although this is more evident in infant development, it is also true in adult development.

Socialisation may take a number of forms, and include observation and modelling, training, coaching and guiding, as well as reinforcement of expressive behaviours.

It therefore appears that individuals are born with an ability to be emotionally intelligent (to some degree), but this innate ability may be further developed in the workplace by carefully designed interventions. The cultural context in which emotional intelligence is developed is therefore likely to give rise to cultural differences between different groups.

In the next section the main theoretical models of emotional intelligence will be presented. The purpose of this presentation is to lay a theoretical foundation for the development of an integrated emotional intelligence model. This model will be used for the development of the emotional intelligence measurement tool that will be used in the empirical part of this research.

2.6 MODELS OF EMOTIONAL INTELLIGENCE

A distinction between ability models (emphasising aptitude for processing affective information) and trait models (conceptualising emotional intelligence as a diverse construct, including aspects of personality and ability) is accepted in the literature of emotional intelligence (Mohamed, El Khouly, & Saad, 2012). The trait models often include motivational factors and affective dispositions, such as self-concept, assertiveness, empathy and others. In this stream of construct development, a number of conceptual disagreements surface, and according to

Zeidner et al. (2004), these disagreements are reflected by a major mismatch in the measurement paradigm.

In contrast to the trait models, the mental ability models are characterised by a fairly well-defined set of emotion-processing skills. This stream focuses on assessing emotional intelligence through objective performance tests (Zeidner et al., 2004).

Petrides (2011) points out that the test construction of emotional intelligence measures did not consider the fundamental psychometric differences between typical and maximal performance measures. Some measures were based on self-report and others on maximal performance, and Petrides (2011) maintains that this led to the measurement of two different constructs, namely trait emotional intelligence and ability emotional intelligence.

The trait models and the ability models are compared in table 2.2 below.

Table 2.2: Comparison between trait and ability models of emotional intelligence

Criteria	Trait model	Ability model
Conceptualisation	Emotional intelligence is viewed as a set of competencies and general dispositions for adaptive personal functioning and coping with environmental demands. It encompasses multiple aspects of emotional and personal knowledge and personal functioning that are rather loosely related to emotion, including emotion, personality traits,	Emotional intelligence is viewed as a well-defined and conceptually related set of cognitive abilities for the processing of emotional information and regulating emotion adaptively (Matthews et al., 2002).

	temperament, character, and social skills (Matthews et al., 2002).	
Expected relationship to g	Unimportant for construct validity, orthogonal (Petrides, 2011).	Crucial for construct validity Moderate to strong correlations (Petrides, 2011).
Psychological focus	Affective (Matthews et al., 2002).	Cognitive (Matthews et al., 2002).
Theoretical model	Personality (Petrides, 2011)	Cognitive ability (Petrides, 2011)
Typical dimensions	Self-awareness, self-motivation, self-regulation, empathy, social skills, assertiveness, stress tolerance, impulse control, coping with stress, reality testing, social problem solving, etc. (Matthews et al., 2002).	Emotion identification, understanding emotions, assimilation of emotion in thought and use of emotions to enhance thought, emotion regulation (Matthews et al., 2002).
Number of competencies	Between four and 24. These may be grouped into four core areas: self-awareness, self-regulation/management, social awareness, relationship management and social skills (Cherniss & Goleman in Matthews et al., 2002).	Four major branches: identification, understanding, usage and self-regulation (Salovey et al. in Matthews et al., 2002).
Key proponents	Goleman, Bar-On (Matthews et al., 2002).	Mayer, Caruso, Salovey (Matthews et al., 2002).
Measurement approaches	Self-report (Petrides, 2011).	Maximum performance (Petrides, 2011).
Typical scales	Bar-On's EQ-I, Schutte's EI scale, Boyatzis and Goleman's emotional competence inventory, Cooper's EQ map (Matthews et al., 2002).	Mayer, Caruso, & Salovey's MEIS, MSCEIT (Matthews et al., 2002).
Reliability of scales	Satisfactory (Matthews et al.,	Low to moderate;

	2002).	inconsistency between scoring procedures and low subtest reliabilities (Matthews et al., 2002).
Convergent validity (vis-à-vis ability)	Very low – negligible correlations with IQ (Matthews et al., 2002).	Moderate correlations of about 0.30 with ability (Matthews et al., 2002).
Divergent validity (vis-à-vis personality)	Low discriminant validity vis-à-vis personality measures, particularly N (Matthews et al., 2002). Good discriminant and incremental validity (Petrides, 2011).	Good discriminant validity, with low correlations with "Big Five" personality facets (Matthews et al., 2002).
Predictive validity	Good, but may reflect confounding with personality (Matthews et al., 2002).	Good but may reflect confounding with ability (Matthews et al., 2002).

The ambiguity around the construct emotional intelligence undoubtedly led to different conceptualisations and operationalisations.

These differences led to the development of two clearly identifiable paradigms on the construct. The two paradigms are commonly labelled as *trait* emotional intelligence (some references labels it as *mixed models*) and (mental) *ability* emotional intelligence. Petrides (2011) even goes as far as coining the paradigms as relating to separate constructs.

The difference between the two paradigms of emotional intelligence is acknowledged in this research but they are still regarded as two separate paradigms of the same construct. Table 2.2 points out subtle differences in the operationalisations of emotional intelligence. The one paradigm views emotional intelligence as a set of eclectic traits and the other views it as an ability.

From the paragraphs above it appears that the trait emotional intelligence paradigm may be the more appropriate paradigm for research where the focus is on shedding light on a phenomenon from a trait, behaviour or competency perspective. If, however, the focus is on emotional intelligence from a mental ability perspective, the more appropriate paradigm would be the (mental) ability paradigm.

The trait and ability conceptualisations of emotional intelligence have given rise to unique measurement models for emotional intelligence. In the next sections the prominent measurement models for emotional intelligence will be discussed.

2.7 ASSESSMENT OF EMOTIONAL INTELLIGENCE

Different measurement approaches to emotional intelligence are associated with different operationalisation of the construct of emotional intelligence (as discussed above in section 2.6) (Cherniss, 2010).

In this section, the main difference in the measurement paradigm of emotional intelligence will, firstly, be contrasted, and secondly, the main measurement models will be compared. This will facilitate the selection of an assessment model for the empirical part of this research.

Matthews et al. (2002) differentiate between performance-based and self-report measures of emotional intelligence. The differences between the two classifications are summarised in table 2.3 below.

Table 2.3: Differences between performance-based and self-report measures of emotional intelligence

Performance-based EI measures	Self-report EI measures
Maximal performance	Typical performance
External appraisal of performance	Internal appraisal of performance
Response bias minimal (or non-existent)	Response bias may be great
Administration time long; testing complicated	Administration time short; testing relatively uncomplicated
Ability like	Personality like

(Adapted from Matthews et al., 2002, p. 180)

From the above it appears that the performance-based measures are employed within the ability conceptualisation of emotional intelligence whereas the self-report measures are more typical of the trait conceptualisation.

In the next sections, the most prominent assessment models for emotional intelligence will be compared critically. The purpose of this is to lay a theoretical foundation for an integrated emotional intelligence model.

The main assessment models for emotional intelligence are summarised in table 2.4 below.

Table 2.4: Summary of emotional intelligence assessment models

Assessment model	Description	Dimensions	Evaluation
Emotional Competence Inventory (ECI) (Version 2) (Wolff, 2005)	First version designed to fit Goleman's model of 1988. Version 2 clearly measures a different competence model. (Matthews et al., 2002)	***Self-awareness*** Emotional self-awareness Accurate self-assessment Self-confidence ***Self-management*** Emotional self-control Trustworthiness Conscientiousness	Reliabilities of sub-scales are low (0.587 – 0.817) considering high stakes application. Peer-reviewed validity studies are scarce.

	Self-report competency questionnaire designed to be used as a 360-degree evaluation tool. 20 competencies clustered into four higher-order dimensions. (Wolff, 2005)	Adaptability Achievement orientation Initiative ***Social awareness*** Empathy Customer service Organisational awareness ***Social skills*** Influence Communication Conflict management Leadership Change catalyst Building bonds Teamwork and collaboration (Wolff, 2005)	Some overlap found between competencies and Big Five factors, for example. "conscientiousness". (Matthews et al., 2002)
Bar-On Emotional quotient Inventory (EQ-i)	Self-report measure. It consists of 15 subscales which, in turn, define five higher-order dimensions.	***Intrapersonal*** Emotional self-awareness Assertiveness Self-regard Self-actualisation Independence ***Interpersonal*** Empathy Interpersonal relationship Social responsibility ***Adaptation*** Problem solving Reality testing Flexibility	High levels of internal consistency as well as high test-retest reliability over one and four months. Confirmatory factor analysis does not support the 15-factor structure. Substantial degree of positive intercorrelation found between the scales, thus the distinctiveness of

		Stress management Stress tolerance Impulse control ***General mood*** Happiness Optimism	these scales is questionable. High correlations found between scales of the EQ-I and the SCL-90, a measure of psychopathological symptomatology. Disturbingly high correlations between the EQ-I scales and five-factor personality sub-scales.
Schutte Self-report Inventory (SSRI)	Self-report measure Based on the earlier work of Mayer and provides a general measure of emotional intelligence as well as four EI sub-factors. (Schutte et al., 1998)	Self-emotions appraisal (SEA) Others-emotions appraisal (OEA) Use of emotion (UOE) Regulation of emotion (ROE) (Schutte et al., 1998).	The SSRI appears to be more distinct from personality than the EQ-i. There is some evidence that supports discriminant validity. The predictive power of the SSRI is somewhat modest. Uncertainties about the dimensional structure as proposed by Schutte et al. (1998). (Matthews et al., 2002)
Mayer, Solovey and	A 141-item ability measurement of	Perceiving emotions *(Measured with faces and*	The reliabilities of the MSCEIT V2.0 scale

Caruso Emotional Intelligence Test (MSCEIT version 2.0)	emotional intelligence. Preceded by the ability measurements of MSCEIT version 1.1 and before that, the Multi-factor Emotional Intelligence Scale (MEIS). MCEIT version 2.0 measures four branches of abilities. Mayer, Salovey, Caruso, and Sitarenios (2003)	*pictures)* Using emotions to facilitate thought *(Measured with sensations and facilitation tasks)* Understanding emotions *(Measured with blends and changes tasks)* Managing emotions *(Measured with emotion management and emotional relationship tasks)* Mayer et al. (2003)	and sub-scales are far from optimal.

Bar-On's Emotional Quotient Inventory (EQ-i), the Emotional Competence Inventory (ECI), the Schutte Self-report Inventory (SSRI), and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT Version 2.0) are currently the more prominent assessment instruments of emotional intelligence and they are critically evaluated and compared above.

The EQ-i, ECI, and SSRI are all trait emotional intelligence measures, whereas the MCEIT is an ability measure. The EQI and ECI are more elaborative measures than the SSRI, but their psychometric evaluations raise more concerns than the SSRI.

The MSCEIT entails a lengthy assessment of an ability and some psychometric concerns are raised in terms of reliability of the scales.

It appears that, even with the more prominent assessment models of emotional intelligence, there are still some psychometric challenges that require attention.

A better integrated model may address the requirements of this research and simultaneously also focus on the elimination of the psychometric challenges that the prominent models face.

2.8 INTEGRATION OF EMOTIONAL INTELLIGENCE DIMENSIONS

Although there are clear paradigms visible in the theory of emotional intelligence, there is still a considerable similarity between different dimensions of the various measurement models. In the next section the dimensions of the more prominent measurement models will be closely investigated and compared. An integration of these dimensions will be proposed and will attempt to capture the unique contribution of each model in a single integrated model.

The Emotional Competence Inventory (ECI), the Emotional Quotient Inventory (EQ-i), the Schutte Self-report Inventory (SSRI) and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT Version 2.0) models are compared below and integrated theoretically.

Table 2.5: Comparison and integration of emotional intelligence measurement models

ECI	EQ-i	SSRI	MSCEIT	Integration
Self-awareness Social awareness	Intrapersonal (Self-awareness and self-expression)	Self-emotions appraisal Others-emotions appraisal	Perceiving emotions	Perceiving emotions: Self Perceiving emotions: Others
Self-management Social skills	Interpersonal (Social awareness and interpersonal relationship) **(Overlaps with all the dimensions of the other models)**	Use of emotions	Using emotions to facilitate thought	Use of emotions to facilitate thought
			Understanding emotions	Understanding emotions
	Stress management Adaptability General mood	Regulation of emotions	Managing emotions	Regulation of emotions

The above integration provides a clear set of emotional intelligence dimensions, covering the existing models satisfactorily. The theoretical integration of the ability, trait and competence models provides an effective platform for the development of a new model that can explain greater variance of emotional intelligence in the empirical research that will follow in this thesis.

The dimensions of the more prominent measurement models were compared and integration was attempted. The following five dimensions were proposed for the integrated model:

- perceiving emotions: self
- perceiving emotions: others
- use of emotions to facilitate thought
- understanding emotions
- regulation of emotions

These dimensions cover both, trait conceptualisations and ability conceptualisations of emotional intelligence. Building on a previous recommendation (end of section 2.7) that this research should lean more towards a trait conceptualisation, the incorporation of a strong ability dimensional structure may be unique but beneficial in that the measurement of emotional intelligence is more comprehensive. As concluded in section 2.8, trait measurement models traditionally follow a self-assessment methodology, and the development of an integrated measurement model will follow this trend.

The dimensions of the proposed emotional intelligence model correspond with the summary of the definition of emotional intelligence as developed at the end of section 2.2 and cover the construct satisfactorily.

2.9 RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND INDIVIDUAL/ORGANISATIONAL VARIABLES

In this section, the focus is on the interaction between emotional intelligence and individual/organisational variables. The purpose of this is twofold, namely to conceptualise emotional intelligence in a theoretical model, and then to use it in the development or validation of an emotional intelligence measurement instrument.

Biographical and demographical variables such as gender were important to this research because they were used during the empirical research to establish if significant differences occur between these classes on the basis of their emotional intelligence. Variables like personality and classical intelligence have relevance to the development of an emotional intelligence instrument and will therefore also be included in this section. Lastly, variables such as job satisfaction, job involvement, organisational commitment, altruistic behaviour, withdrawal intention, performance, leadership, psychological wellness, customer orientation, change orientation, work-family conflict, problem solving and concern for quality can be linked to organisational climate dimensions and will be indicated during formulation of the integration model of organisational climate and emotional intelligence.

2.9.1 Gender

Petrides, Furnham, and Martin (2004) found empirical support for the gender-based stereotype that cognitive intelligence (or “psychometric intelligence” as they labelled it) is primarily a masculine attribute and emotional intelligence is primarily a feminine attribute. In their British sample of 224 participants, males rated their own psychometric intelligence higher and their emotional intelligence as lower than the estimates of females.

In contrast to the above research, Mandell and Pherwani (2003) found no significant difference between the actual emotional intelligence scores of males and females in their somewhat small sample of 32 managers. Mandell and Pherwani (2003) used Bar-On’s EQ-I to measure emotional intelligence.

In contrast to Mandell and Pherwani, Day and Carroll (2004) produced support for previous research findings that women produced better emotional intelligence scores than men in their Canadian sample of 246 undergraduate students.

In a South African environment, Van Staden (2001) used the MCEIT (version 2) in a sample of 402 students. He found that female students exhibited higher levels (than their male counterparts) of:

- the ability to accurately identify emotions
- the ability to facilitate emotion
- the ability to understand the blending of emotions
- the ability to manage emotions

This study therefore supported the finding that females are more emotionally intelligent than males.

In another South African Study, Stone (2004) used the EIS (a measurement of trait emotional intelligence developed by Schutte et al. (1988)) in a sample of 118 respondents in the software development environment and found that females have statistically significant higher total emotional intelligence scores than their male counterparts.

2.9.2 Personality

In the paragraphs below the interaction between emotional intelligence and the Big Five model as well as the Meyers-Briggs model of personality will be discussed.

2.9.2.1 Emotional intelligence and the Big Five

Barchard and Hakstian (2004) constructed an ability emotional intelligence scale by employing cross-domain factor analysis. This newly constructed instrument measured emotional congruence (reliability = 0.92) and social perceptiveness (reliability = 0.82). They collected data from two groups of undergraduate students and administered 12 cognitive ability scales, 24 emotional intelligence scales and 23 personality-trait scales to 150 students at the University of British

Columbia in the one group. In the second group (n = 26 psychology students), they administered 12 cognitive ability scales and 16 emotional intelligence scales. A small number completed the remaining eight emotional intelligence scales and was considered for a chance to win $1 000. No statistically significant ($p < 0.005$) correlations between emotional congruence (of the ability emotional intelligence scale) and the Big Five personality dimensions were found. Statistically significant ($p < 0.005$) correlations were, however, reported between social perceptiveness (of the ability emotional intelligence scale) and extroversion (r = 0.25) as well as with openness (r = 0.27) (Barchard & Hakstian, 2004).

The size of these correlations is regarded as being in the trivial range (see table 4.3).

Day and Carroll (2004) also used an ability emotional intelligence scale (the MSCEIT Research Version 1.1, together with (among other scales) a Big Five personality measure, the NEO-FFI of Costa and McCrae (1992)). The cross-correlations are summarised in table 2.6 below.

Table 2.6: Cross-correlation between Big Five and MSCEIT (research version 1.1) dimensions

	Emotional management (α = 0.87)	**Emotional understanding** (α = 0.77)	**Emotional integration** (α = 0.90)	**Emotional perception** (α = 0.91)
Neuroticism (α = 0.87)	0.01	0.02	-0.06	**-0.11***
Extroversion (α = 0.80)	-0.02	**-0.15***	**-0.11***	-0.05
Openness (α = 0.73)	**0.23*****	**0.13***	**0.18****	**0.18****
Agreeableness (α = 0.74)	**0.16****	0.03	0.03	0.10
Conscientiousness (α = 0.84)	0.05	-0.01	0.01	0.02

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Source: Day and Carroll (2004)

What is evident from the above correlations are the weak but statistically significant correlations between openness and all the emotional intelligence dimensions. The strongest correlation was found between emotional management and openness. These correlations are congruent with the findings of Barchard and Hakstian (2004), but differ in that extroversion correlated weakly and negatively to two emotional intelligence dimensions, namely emotional understanding and emotional integration.

Somewhat contradictory to Barchard and Hakstian (2004), Day and Carroll (2004) found some small (but statistically significant) correlations between the subscales of the two constructs. The personality subscale of openness correlated significantly with all the emotional intelligence subscales.

The negative correlation between emotional intelligence and extroversion was surprising and contrary to expectation. Also the trivial correlations between emotional intelligence and conscientiousness was different to that expected.

In general terms, mixed results were found for ability emotional intelligence and the Big Five personality scales. For the researcher, the reports suggest a possible trend of weak, but significant correlations between ability emotional intelligence and the Big Five personality scales.

In another independent research study, Law et al. (2004) administered their 16-item trait emotional intelligence scale (WLEIS) with, among other instruments, Costa and McGrae's Big Five personality questionnaire in two samples. The first sample comprised 202 undergraduate students at a large university in Hong Kong. The second sample consisted of 216 undergraduate business students from another large Hong Kong university.

The correlations between emotional intelligence and personality are summarised in table 2.7 below. The Cronbach alpha values were calculated for the two samples and are indicated in parenthesis underneath the name of the sub-scale. (The researcher finds the Cronbach alpha values of the WLEIS surprisingly high, especially in the light of the fact that the sub-scales of the WLEIS are measured using only four items each.)

One should note that the differences between the Cronbach alpha values of the WLEIS sub-scales differed slightly because of differences between the two samples. The differences between the Cronbach alpha values of the sub-scales of the Big Five are not only influenced by the differences in the compositions of the samples, but also by the fact that two different forms of the Big Five were used. In the first sample, the 1985 short version of Costa and McCrae's Big Five measure was used. This measurement instrument had 12 items assigned to measure each personality dimension. In the second sample, the constructs were

measured with the same model (to ensure comparability), but six items were randomly selected from each dimension of the 1987 version (of Costa and McCrae's Big Five model). The fewer Big Five personality items used in the second sample probably resulted in the generally lower reliability estimates of the Big Five sub-scales when compared to the first sample.

Table 2.7: Cross-correlations between the Big Five and WLEIS dimensions

	SEA-1 (α = 0.89)	**ROE-1** (α = 0.89)	**UOE-1** (α = 0.80)	**OEA-1** (α = 0.89)	**SEA-2** (α = 0.90)	**ROE-2** (α = 0.89)	**UOE-2** (α = 0.79)	**OEA-2** (α = 0.93)
Neuroticism -1 (α = 0.81)	-0.30	-0.43	-0.22	-0.01				
Extroversion –1 (α = 0.70)	0.06	0.06	0.11	0.03				
Openness –1 (α = 0.57)	0.15	0.03	0.22	0.16				
Agreeableness –1 (α = 0.62)	0.09	0.06	0.02	0.04				
Conscientiousness –1 (α = 0.67) -1	0.30	0.27	0.44	0.22				
Neuroticism -2 (α = 0.75)					-0.26	-0.45	-0.24	-0.07
Extroversion –2 (α = 0.79)					0.23	-0.01	0.22	0.19
Openness -2 (α = 0.61)					0.13	-0.13	0.16	0.20
Agreeableness –2 (α = 0.67)					0.19	0.12	0.05	0.08
Conscientiousness –2 (α = 0.70)					0.28	0.26	0.36	0.21

SAE = Self-emotions appraisal
OEA = Others-emotions appraisal
UOE = Use of emotions
ROE = Regulation of emotion
1 = Sample 1 (n = 202)
2 = Sample 2 (n = 216)

Source: Law et al. (2004)

From both the above sets of data, the trivial to weak correlations between conscientiousness and the majority of emotional intelligence subscales and the negatively trivial to weak correlations between neuroticism and the majority of the emotional intelligence dimensions are clearly visible.

More recently the Trait Emotional Intelligence Questionnaire (short form) TIEOque-SF was used on two samples of Dutch twins (n = 377 and 383) and the NEO-FFI, the shortened version of the NEO Personality Inventory (revised). A similar pattern of results appeared with regard to the moderate negative relationship between emotional intelligence and neuroticism (-0.59 & -0.66), and the moderate relationship with conscientiousness (0.45 & 0.48), but the study also reported weak correlations to extroversion (0.54 & 0.52), openness (0.24 & 0.24) and agreeableness (0.36 & 0.34) (Petrides, Vernon, Schermer, Ligthart, Boomsma, & Veselka, 2010).

Similar yet different patterns of correlations emerged in Law et al. (2004) and Petrides et al. (2010). The different emotional intelligence sub-scales seem to correlate weak-to-moderately negatively with neuroticism and generally conscientiousness also seems to correlate weak-to-moderately with the emotional intelligence sub-scales in both samples.

The interaction between emotional intelligence and the personality scales of extroversion and openness is significant because the results of Barchard and Hakstian (2004) and Day and Carroll (2004) were somewhat mixed. Although the correlations were not as strong as in the research of Barchard and Hakstian (2004), and especially in the research of Petrides et al. (2010), small correlations were generally found between the emotional intelligence scales and the Big Five scales.

2.9.2.2 Emotional intelligence and the MBTI

Higgs (2001) examined the relationship between emotional intelligence (as measured by the adjusted trait emotional intelligence scale of Dulewicz and Higgs, 1999) and personality as measured by the Meyers-Briggs Type Indicator (MBTI). The sample consisted of 177 respondents, all managers, in the United Kingdom.

The sub-scales of the Dulewicz and Higgs (1999) model of emotional intelligence are self-awareness, emotional resilience, motivation, interpersonal sensitivity, influence, intuitiveness (decisiveness) and conscientiousness. The personality types measured by the MBTI are extroversion (E), introversion (I), intuitive perception (N), sensing perception (S), thinking judgement (T), feeling judgement (F), judging attitude (J), and perceptive attitude (P).

The point biserial correlations between the MBTI scales and emotional intelligence scales are summarised in table 2.8.

Table 2.8: Correlation between MBTI and emotional intelligence

	MBTI scales							
	MBTI- E	**MBTI- I**	**MBTI- N**	**MBTI- S**	**MBTI- T**	**MBTI- F**	**MBTI- J**	**MBTI- P**
Self-Awareness	0.125	-0.125	0.055	-0.055	0.071	-0.084	-0.062	-0.062
	(0.097)	(0.097)	(0.466)	(0.466)	(0.345)	(0.265)	(0.414)	(0.414)
Emotional resilience	0.027	-0.027	0.042	-0.042	**0.198***	**-0.204***	0.025	-0.025
	(0.721)	(0.721)	(0.582)	(0.582)	**(0.008)***	**(0.006)***	(0.744)	(0.744)
Motivation	0.286	-0.286	0.076	-0.076	0.125	-0.127	-0.010	0.010
	(0.000)	(0.000)	(0.313)	(0.313)	(0.097)	(0.092)	(0.894)	(0.894)
Interpersonal sensitivity	0.098	-0.098	0.179	-0.179	-0.082	0.110	-0.036	0.036
	(0.196)	(0.196)	(0.017)	(0.017)	(0.279)	(0.144)	(0.635)	(0.635)
Influence	0.308	-0.308	0.219	-0.219	0.053	-0.052	0.011	-0.011
	(0.000)	(0.000)	(0.003)	(0.003)	(0.482)	(0.491)	(0.890)	(0.890)
Intuitive decision making	**0.232***	**-0.232***	**0.336***	**-0.336***	0.110	-0.114	**-0.253***	**0.253***
	(0.002)*	**(0.002)***	**(0.000)***	**(0.000)***	(0.145)	(0.132)	**(0.001)***	**(0.001)***
Conscien-tiousness	0.005	-0.005	-0.107	0.107	-0.025	0.021	0.031	-0.031
	(0.952)	(0.952)	(0.154)	(0.154)	(0.737)	(0.784)	(0.685)	(0.685)
Total emotional intelligence	**0.249***	**-0.249***	**0.179***	**-0.179***	0.120	-0.122	-0.033	0.033
	(0.001)*	**(0.001)***	**(0.017)***	**(0.017)***	(0.113)	(0.107)	(0.661)	(0.661)

* Correlation significant at at least < 0.05

Source: Higgs (2001)

Higgs (2001) reported that the MBTI dimension of extroversion correlated the highest (and statistically significantly at the 0.001 – level) with the total emotional intelligence score. The introversion score therefore correlated negatively with the total emotional intelligence score.

Besides extroversion (and the inverse effect on introversion), intuitive perception also correlated statistically significantly (at the 0.017 – level) with the total emotional intelligence score, although significantly, the correlation is regarded as poor. As expected, the inverse effect was found, in that the sensing scale correlated poorly and negatively with the total emotional intelligence score.

Surprisingly, none of the MBTI scales correlated with self-awareness and conscientiousness. Especially in view of the poor-to-moderate correlations between emotional intelligence and conscientiousness reported by Law et al. (2004), also using a trait emotional intelligence scale, the expectation would be to find at least very low statistically significant correlations.

Coetzee (2005) researched emotional intelligence in a South African sample of 107 leaders and, among other things, administered the MBTI together with a new measure of emotional intelligence, namely the 360-degree Emotional Competence Profiler (ECP). The point biserial correlations between the two measurements are summarised in table 2.9 below, together with the Cronbach alpha values of the ECP and its sub-scales.

Table 2.9: Correlation between MBTI and emotional intelligence (South African sample)

			MBTI dichotomous scales			
			E-I	**S-N**	**T-F**	**J-P**
ECP	**Emotional literacy**	**Self** (α = 0.51)	0.12 (0.21)	**0.2 (0.04)***	-0.08 (0.43)	0.17 (0.08)
		Other (α = 0.75)	**-0.23 (0.02)***	-0.01 (0.95)	-0.05 (0.63)	0.04 (0.66)
	Self-esteem/ self-regard	**Self** (α = 0.67)	0.16 (0.11)	-0.14 (0.16)	-0.02 (0.85)	-0.15 (0.12)
		Other (α = 0.74)	-0.16 (0.10)	-0.02 (0.86)	-0.05 (0.64)	-0.00 (0.99)

	Self-management	**Self** (α = 0.74)	0.12 (0.21)	-0.5 (0.63)	**0.20 (0.04)***	0.04 (0.70)
		Other (α = 0.79)	-0.08 (0.43)	-0.01 (0.93)	-0.01 (0.95)	-0.03 (0.78)
	Self-motivation	**Self** (α = 0.61)	**0.26 (0.01)****	-0.03 (0.76)	0.00 (0.33)	0.10 (0.32)
		Other (α = 0.74)	-0.17 (0.08)	0.01 (0.96)	-0.01 (0.89)	0.04 (0.67)
	Change resilience	**Self** (α = 0.77)	0.15 (0.11)	**-0.19 (0.05)***	0.07 (0.47)	-0.09 (0.37)
		Other (α = 0.78)	-0.16 (0.11)	-0.02 (0.86)	-0.15 (0.12)	-0.76 (0.44)
	Interpersonal relations	**Self** (α = 0.79)	0.18 (0.07)	0.03 (0.77)	-0.06 (0.56)	0.05 (0.63)
		Other (α = 0.86)	**-0.19 (0.05)***	0.01 (0.88)	-0.08 (0.43)	0.06 (0.57)
	Integration of head and heart	**Self** (α = 0.71)	0.03 (0.75)	0.02 (0.80)	0.02 (0.80)	0.11 (0.26)
		Other (α = 0.78)	-0.15 (0.11)	-0.14 (0.15)	-0.18 (0.06)	-0.10 (0.32)
	Total ECP score	**Self** (α = 0.91)	**0.20 (0.04)***	-0.04 (0.70)	0.05 (0.60)	0.04 (0.70)
		Other (α = 0.95)	**-0.20 (0.04)***	-0.03 (0.78)	-0.09 (0.36)	-0.01 (0.94)

* p =< 0,05

** p < 0,01

*** p < 0,001

Source: Coetzee (2005)

From the above table it is evident that the MBTI extroversion-introversion scale weakly correlated with the ECP overall emotional intelligence scale. The sensing-

intuitive perception scale did not produce the same weak/trivial (yet statistically significant) correlation with the overall emotional intelligence scale (ECP) as with the research of Higgs (2001). Both studies did not produce correlations between thinking-feeling and emotional intelligence and the between judging-perceptive scale and emotional intelligence.

The above two studies differed in that different emotional intelligence measurement instruments were used, the geographical location differed and the reporting on the MBTI correlations differed (eight personality type scales versus the four dichotomous scales). These differences make exact comparisons between the two studies impossible. However, some similarities become apparent when the two research findings are studied.

The correlation between extroversion–introversion and total emotional intelligence reported by Coetzee (2005) was also found in the research of Higgs (2001), also to the approximate same magnitude. Further, although Coetzee did not find a low (but statistically significant) correlation between sensing – intuitive perception and emotional intelligence, some of the sub-scales did correlate. The emotional intelligence sub-scales of emotional literacy and change resilience did show a small but significant correlation. In both instances, no correlations were found between the total emotional intelligence score and the thinking – feeling judgement scale, and the perceptive – judging attitude scale.

2.9.3 Intelligence (g)

It is expected that emotional intelligence scales should correlate moderately with intelligence scales. These moderate correlations would indicate an “intelligence” component in the emotional intelligence scales. Similarly, extremely high correlations would imply similarity in the scales (i.e. cognitive intelligence instead of emotional intelligence). A few trivial or no correlations, in contrast, would

suggest that the scales have nothing in common and therefore that the emotional intelligence scale does not measure a form of intelligence.

In their research, Barchard and Hakstian (2004) collected data from two groups of undergraduate students. In the first group, they administered 12 cognitive ability scales, 24 emotional intelligence scales, and 23 personality trait scales to 150 students at the University of British Columbia in the one group. In the second group, they administered 12 cognitive ability scales and 16 emotional intelligence scales to 25 psychology students. A small number completed the remaining eight emotional intelligence scales and was informed they would be considered for a chance to win $1 000.

Barchard and Hakstian (2004) constructed an ability emotional intelligence scale, measuring emotional congruence (α = 0.92) and social perceptiveness (α = 0.82). A statistically significant (p < 0.005) correlation between emotional congruence (of the ability emotional intelligence scale) and verbal ability (of the cognitive intelligence scale) was found at r = 0.24 (Barchard & Hakstian, 2004). With reference to the effect size (as discussed in table 4.3), this value may be regarded as trivial.

Statistically significant (p < 0.005) correlations were reported between social perceptiveness (of the ability emotional intelligence scale) and verbal ability (r = 0.50), verbal closure (r = 0.28), visualisation (r = 0.27), and inductive reasoning (r = 0.44) (Barchard & Hakstian, 2004). The correlations are (with reference to section 2.8) small for one of the cognitive ability measures, one is big and the rest are moderate. Overall, the effect size is moderate. Interestingly, the emotional intelligence correlations are higher with the cognitive ability measures than with the personality measures. This effect is the result of the measurement instrument which uses ability measures instead of trait measures.

From the above it is clear that emotional intelligence measurements are moderately related to cognitive intelligence.

2.9.4 Job satisfaction

Carmeli (2003) used the six-item scale of Tsui, Egan, and O'Reilly (1992) to assess job satisfaction in a sample of 98 Israeli senior managers and found a significant, positive correlation with emotional intelligence (as measured with the Schutte et al. (1998) 33 item, self-report measure. The Cronbach alpha value for the job satisfaction scale was α = 0.68 and for the emotional intelligence scale it was α = 0.90.

The above finding is congruent with Lam and O'Higgins (2012), where 323 participants were assessed in China. The Wong Emotional Intelligence Scale (WEIS) was used to assess (trait) emotional intelligence and the Multifactor Leadership Questionnaire (MLQ-5x) was used to assess leadership style. The Cronbach alpha (as calculated in this research) was α = 0.66 for WEIS and was α = 0.90 for the MLQ-5x. The results indicated a positive correlation between trait emotional intelligence and job satisfaction ($r = 0.26$; $p < 0.01$), but also, inter alia, that leaders' transformational style mediates the relationship between manager emotional intelligence and job satisfaction.

Interestingly, Rozell and Scroggins (2010) indicate a risk in that highly emotionally intelligent individuals may read too much into the emotional cues of others and as a result experience lower group satisfaction.

From the above finding it would appear to the researcher that moderately emotionally intelligent managers would be, through the use of conceptually related mental processes, more able to generate positive feelings and moods that generate higher levels of satisfaction and well-being than their lower and highly emotionally intelligent counterparts.

2.9.5 Job involvement

Carmeli (2003) used the 10-item scale developed by Kanungo (in Carmeli, 2003) to assess job involvement in a sample of 98 Israeli senior managers and found it to be statistically unrelated to emotional intelligence (as measured with the Schutte et al. (1998) 33-item, self-report measure. The Cronbach alpha value for the job involvement scale was α = 0.82 and for the emotional intelligence scale it was α = 0.90. Interestingly, job involvement was found to be significantly related to tenure in the organisation as well as to gross income.

2.9.6 Organisational commitment

Carmeli (2003) used the scale of Allen and Meyer (1990) to assess affective and continuance organisational commitment in a sample of 98 Israeli senior managers. The Cronbach alpha value for the affective organisational commitment scale was α = 0.73 and for the continuance organisational commitment was α = 0.82. Emotional intelligence was measured using the Schutte et al. (1998) 33-item, self-report measure (α = 0.90).

Carmeli (2003) found that senior managers with high emotional intelligence tend to develop high affective organisational commitment (emotional attachment) to the organisation where they work. The relationship between emotional intelligence and continuance organisational intelligence, however, was found to be in the expected direction, but not statistically significant.

It would therefore appear that emotionally intelligent individuals have the ability to resolve difficulties in their work, and therefore reduce accompanying frustration. Emotionally intelligent individuals are skilful enough to place themselves in more positive affective states and able to experience negative affective states without destructive consequences (Carmeli, 2003). Emotional intelligence therefore facilitates higher levels of affective organisational commitment and (although the

relation was not found statistically significant) increases the level of continuance commitment.

In contrast to the above, Rozell, Pettijohn, and Parker (2004) used the same emotional intelligence scale (Schutte et al., 1998) and the same affective commitment scale (Allen & Meyer, 1990) in their sample of 103 US salespeople. Rozell et al. (2004) report a Cronbach alpha of α = 0.83 for the emotional intelligence scale, and 0.84 for affective commitment in their research. No significant correlation between the constructs was found.

Nikolaou and Tsaousis (2002) researched emotional intelligence, stress and organisational commitment in a sample of 212 health professionals in Greece. They used a 91-item trait emotional intelligence scale, based on the theoretical model of Mayer, Caruso, and Salovey, (2000b) and reported α = 0.95 for the overall measurement.

The organisational commitment scores were obtained from the organisational stress screening tool. Two subscales were used, namely commitment of the organisation to the employee (α = 0.88) and commitment of the employee to the organisation (α = 0.86).

The correlations between emotional intelligence and the commitment scales are summarised in table 2.10 below.

Table 2.10: Correlations between emotional intelligence and organisational commitment

	Commitment of employee to the organisation (α = 0.86)	Commitment of organisation to the employee (α = 0.88)
Perception and appraisal (α = 0.81)	-0.03	0.10
Control of emotions (α = 0.94)	0.42**	0.37**
Use of emotions (α = 0.95)	0.58**	0.53**
Understanding and reasoning (α = 0.90)	0.25**	0.26**
Total emotional intelligence (α = 0.90)	0.53**	0.46**

* $p < 0,05$

** $p < 0,01$

Source: Nikolaou and Tsaousis (2002)

Interestingly, despite the reasonable reliability of the measurement, the emotional-intelligence subscale of perception and appraisal produced trivial correlations with commitment of the employee to the organisation as well as commitment of the organisation to the employee. This may suggest the action of controlling emotions, actual use of emotions and the fact that reasoning may be required for an emotional intelligence subscale to correlate with organisational commitment.

2.9.7 Work-family conflict

According to Carmeli (2003), senior managers may encounter a higher level of job demands that could result in work-family conflict.

Carmeli (2003) used the scale based on the measure of Carlson, Kacmar, and Williams (in Carmeli, 2003) to assess work-family conflict in a sample of 98 Israeli

senior managers and found a significant, positive correlation with emotional intelligence, as measured using the Schutte et al. (1998) 33-item, self-report measure. The Cronbach alpha value for the work-family conflict scale was α = 0.79 and for the emotional intelligence scale it was α = 0.90.

The above finding implies that senior managers who have higher emotional intelligence may better and more carefully handle inherent work-family conflict than those who have low emotional intelligence.

2.9.8 Altruistic behaviour

Carmeli (2003) used the scale of Podsakoff, MacKenzie, Moorman, and Fetter (1990) to assess altruistic behaviour in a sample of 98 Israeli senior managers and found a significantly strong positive relation with emotional intelligence (as measured using the Schutte et al. (1998) 33-item, self-report measure. The Cronbach alpha value for the altruistic behaviour scale was α = 0.82 and for the emotional intelligence scale it was α = 0.90.

This finding implies that emotionally intelligent employees are more likely to engage in altruistic behaviour, like helping others with a heavy workload and being kind to team members.

2.9.9 Withdrawal intention

Carmeli (2003) used the scale examined by Mobley, Horner, and Hollingsworth (1978) to measure withdrawal intention from the organisation in a sample of 98 Israeli senior managers and found a significant, positive relation with emotional intelligence (as measured with the Schutte et al. (1998) 33-item, self-report measure). The Cronbach alpha value for the withdrawal intention scale was 0.90 and for the emotional intelligence scale it was also 0.90.

This finding is congruent with the correlation between emotional intelligence and organisational commitment as discussed in section 3.9.6.

2.9.10 Performance

The construct of emotional intelligence has been a popular and romantic topic for journalists and many of their claims about the influence of emotional intelligence on performance are, as Day and Carroll (2004) correctly point out, based on misinterpreted data.

Day and Carroll (2004) used the MSCEIT Research Version 1.1 to assess emotional intelligence (ability measurement) in a sample of 246 undergraduate students at a Canadian university. Among other things, performance was assessed during an individual and group exercise and these scores were correlated with emotional intelligence scores. The results are summarised in table 2.11 below.

Table 2.11: Correlations between emotional intelligence and individual and group performance

	Individual performance	**Group performance**
Emotional management ($\alpha = 0.87$)	0.02	0.00
Emotional understanding ($\alpha = 0.77$)	0.06	0.02
Emotional integration ($\alpha = 0.90$)	0.08	0.05
Emotional perception ($\alpha = 0.91$)	0.17**	0.01

** $p < 0.01$

Source: Day and Carroll (2004)

Besides the statistically significant correlation between individual performance and emotional perception, the other correlations were all trivial and insignificant. This finding seriously questioned the relationship between emotional intelligence and work performance.

Carmeli (2003) used the scale of Pearce and Porter (in Carmeli, 2003) to assess performance in a sample of 98 Israeli senior managers and found a significant, positive relation with emotional intelligence (as measured with the Schutte et al. (1998) 33-item, self-report measure). The Cronbach alpha value for the performance measure was α = 0.87 and for the emotional intelligence scale it was α = 0.90.

Rozell et al. (2004) also used the emotional intelligence scale of Schutte et al. (1998) in their sample of 103 US sales people. Although Schutte et al. (1998) reported an α = 0.90, the Cronbach alpha for Rozell et al. (2004) was 0.83.

Rozell et al. (2004) used an adapted version of the self-report measure of Behrman and Perreault (1982) to measure performance. Rozell et al. (2004) reported the Cronbach alpha for their research as 0.85.

Rozell et al. (2004) reported a correlation between their emotional intelligence and performance measures of r = 0.20 (p < 0.05). This correlation may be regarded as a small one, although statistically significant.

Wu (2011) used a sample of 571 employees across the financial sector in Taiwan. The measurement instrument for emotional intelligence was the trait emotional intelligence scale of Schutte et al. (1998) (α = 0.88 obtained) and the job performance instrument was a six-item self-appraisal originally developed by Dubrinsky and Mattson and adapted by Singh, Verbeke, and Rhoads (1996) (α = 0.86 obtained). Wu (2011) reported a correlation of 0.44 (p < 0,0001).

The above finding is congruent with that of Lam and O'Higgins (2012), where 323 participants were assessed in China. The Wong Emotional Intelligence Scale (WEIS) was used to assess (trait) emotional intelligence and the Multifactor Leadership Questionnaire (MLQ-5x) was used to assess leadership style. The Cronbach alpha (as calculated in this research) was 0.66 for WEIS and 0.90 for the MLQ-5x. The results indicated a positive correlation between trait emotional intelligence and employee performance ($r = 0.16$; $p < 0.01$), but no mediating effect was found for manager's transformational leadership style on the relationship between managers' emotional intelligence and performance in a regression analysis.

Although some inconsistencies can be found for the relationship between emotional intelligence and work performance, there seems to be evidence of a positive relationship in the research literature.

2.9.11 Leadership

Research on leadership clearly suggests transformational leadership as one of the most effective ways of leading people (Bass & Avolio, 1996).

Mandell and Pherwani (2003) researched emotional intelligence and leadership style in a sample of 32 managers. Of the 32 managers, 18 had a master's degree or equivalent and eight had a bachelor's degree, and the sample could therefore be regarded as highly educated. For the purpose of measuring leadership style, they used the 45-item Multi-factor Leadership Questionnaire (MLQ, 5x- revised, see Bass and Avolio, 1996), and for the measurement of emotional intelligence, the Bar-On (1997) Emotional Quotient inventory (EQ-i).

Mandell and Pherwani (2003) reported a significant ($R = 0.44$, $R^2 = 0.249$, $p < 0.05$) linear relationship between transformational leadership style and emotional intelligence.

The above research confirms an earlier research finding in which Gardner and Stough (2002) found no statistically significant relation between transactional leadership and emotional intelligence, but a statistically significant ($p < 0.01$) correlation between transformational leadership style and emotional intelligence.

Not all research concerning emotional intelligence and leadership styles supports this finding, and earlier research conducted by Palmer, Walls, Burges, and Stough (2001) found no statistically significant correlation between emotional intelligence and transformational leadership or transactional leadership styles. In this vein, Lindebaum and Cartwright (2011) point to research that confirms a strong and significant relationship between trait emotional intelligence and transformational leadership and indicates that much weaker correlations are found when ability measures of emotional intelligence are used to correlate with transformational leadership. Cherniss et al. (2010) also indicate that the relationship to emotional intelligence seems to be influenced by the manner in which it has been defined.

The above finding is congruent with that of Lam and O'Higgins (2012) who assessed 323 participants in China. The Wong Emotional Intelligence Scale (WEIS) was used to assess (trait) emotional intelligence, while the Multifactor Leadership Questionnaire (MLQ-5x) was used to assess leadership style. The Cronbach alpha (as calculated in their research) was 0.66 for the WEIS and 0.90 for the MLQ-5x. The results indicate a positive correlation between trait emotional intelligence and transformational leadership style, but also (among other things) that leaders' emotional intelligence is significantly related to transformational leadership style ($\beta = 0.05$; $p < 0.01$).

In general research seems to suggest that leaders with strong emotional intelligence would probably lead through a transformational leadership style, a style where they are able to clearly articulate and inspire a shared vision and are

able to gain respect and trust from followers, and where followers are motivated and inspired through proper communication.

2.9.12 Psychological wellness

Stone (2004) researched the relationship between three wellness variables and emotional intelligence in a sample of 118 South Africans in an information technology environment.

Emotional intelligence was measured with the trait emotional intelligence scale of Schutte et al. (1998).

The measures of psychological wellness were as follows:

- sense of coherence – measured by means of the Sense of Coherence Scale (Antonovsky, 1993)
- work locus of control – measured by means of the Work Locus of Control Scale (Spector, 1988)
- coping – measured by means of the COPE Scale (Carver, Scheier, & Weintraub, 1989)

The research results, as well as the Cronbach alpha values calculated for the respective scales in the sample, are summarised in table 2.12 below.

Table 2.12: Correlations between emotional intelligence and measures of psychological wellness

		Emotional intelligence (α = 0,91)
Sense of coherence (α = 0.91)		0.642**
Work locus of control (α = 0.87)		-0.245**
Coping (α = 0.81)	Acceptance	0.117
	Seeking support for emotional reasons	0.530**
	Positive reinterpretation	0.547**
	Focus on venting emotions	0.327**
	Denial	-0.156

** $p < 0.01$

Source: Stone (2004)

The statistically significant correlation between emotional intelligence and sense of coherence can be regarded as large. People with strong emotional intelligence abilities are therefore likely to have a strong sense of coherence. The strong correlation can be attributed to the fact that the ability to motivate oneself to cope with environmental demands is conceptually shared by the two constructs (Stone, 2004).

The work locus of control score is calculated so that an external locus of control is indicated by a high score (Stone, 2004). The statistically significant negative correlation can be interpreted as indicating that individuals with a high emotional intelligence are associated with a predominantly internal locus of control. This makes conceptual sense when one considers that emotionally intelligent behaviour is associated with self-motivation and coping (Stone, 2004).

Mixed results were reported by Stone (2004). Statistically significant correlations were found between emotional intelligence and the emotion-based coping strategies of seeking support for emotional reasons, positive reinterpretation and focus on venting emotions. The coping strategies of denial and acceptance were found not to be related to emotional intelligence. It thus appears that the self-motivational forces of emotionally intelligent people block the use of acceptance or denial of a bad experience.

Similar findings were published by Salami (2011). He studied, inter alia, emotional intelligence by also utilising a trait emotional intelligence scale (Wong and Law's WLEIS) (α = 0.85 reported) and personal well-being (a 42-item scale was used, α = 0.90). A sample of 400 adolescents from secondary schools in south-western Nigeria was utilised and an overall correlation of r = 0.46 ($p < 0.05$) was reported.

Lam and O'Higgins (2012) assessed 323 participants in China. The Wong Emotional Intelligence Scale (WEIS) was used to assess (trait) emotional intelligence. The Cronbach alpha for this research was α = 0.66. A negative correlation between trait emotional intelligence and job stress (r = -0.12; p< 0.05) was found. However, no mediating effect was found for managers' transformational leadership style on the relationship between managers' emotional intelligence and job stress in a regression analysis.

From the above it is clear that emotional intelligence is related to psychological well-being, probably through relatedness with a sense of coherence, internal locus of control and effective coping mechanisms and thereby negatively related to job stress.

2.9.13 Customer orientation

Rozell et al. (2004) researched, inter alia, customer orientation and emotional intelligence in a US sample of 103 sales people. For the purpose of measuring customer orientation, they used the SOCO (selling orientation/ customer orientation) modified scale originally developed by Saxe and Weitz (1982). Rozell et al. (2004) reported a Cronbach alpha of 0.87 in their research.

For the purpose of measuring emotional intelligence, they used the Schutte et al. (1998) 33-item, self-report measure. Rozell et al. (2004) report the Cronbach alpha of the instrument for their research as 0.83, somewhat lower than the 0.90 reported by Schutte et al. (1998).

A correlation of r = 0.25 ($p < 0.01$) was reported in the study, indicating that emotional intelligence is positively associated with higher levels of customer orientation.

Pettijohn, Rozell, and Newman (2010) more recently found a correlation of 0.48 ($p < 0.0001$) between customer orientation and emotional intelligence in a UK sample of 71 pharmaceutical salespeople. The same measurement instruments were utilised as in the above research.

From the above it is clear that emotional intelligence is related to customer orientation. Development of emotional intelligence may therefore be expected to have a positive impact on the customer orientation levels of employees.

2.9.14 Change orientation

Vakola, Tsaousis, and Nikalaou (2004) researched, inter alia, the role of emotional intelligence on attitudes towards change. For the purpose of measuring emotional intelligence, they used a 91-item trait emotional intelligence

questionnaire developed by Tsaousis and based on the theory of Mayer and his associates (Mayer et al., 2000). A 29-item attitude to change questionnaire (ACQ) was developed specifically for the above research.

Vakola et al. (2004) used a sample of 137 professionals from Greece to research the effect of change orientation on emotional intelligence. The results are summarised in table 2.13 below, together with the Cronbach alpha values calculated for the respective scales during the present research.

Table 2.13: Correlations between emotional intelligence and attitude to change

	Change attitude **(α = 0.93)**
Perception and appraisal **(α = 0.81)**	0.292*
Control of emotions **(α = 0.93)**	0.318*
Use of emotions **(α = 0.91)**	0.530*
Understanding of emotions **(α = 0.89)**	0.376*
Total emotional intelligence **(α = 0.94)**	0.531*

* $p < 0.01$

Source: Vakola et al. (2004)

A statistically significant and moderate correlation emerged between total emotional intelligence and attitude towards change. This finding makes sense when it is considered together with the linear relationship reported between emotional intelligence and transformational leadership.

The positive relationship between emotional intelligence and change orientation implies that change orientation is likely to be generated when employees' emotional intelligence is developed to more advanced levels.

2.9.15 Concern for quality and problem solving

Rahim and Minors (2003) developed a 21-item trait emotional intelligence questionnaire (for assessment of management), based on the theoretical model of Goleman (1998). Concern for quality was measured using a five-item questionnaire, developed for this correlational study. Problem solving was measured using a selection of seven items from the Rahim Organisational Conflict Inventory-II, form A (Rahim, 1983).

The three instruments were administered to 220 members of the chamber of commerce in a Southern state of the USA. The correlations between management emotional intelligence, problem solving and concern for quality, together with the Cronbach alpha values of the respective scales, are summarised in table 2.14 below.

Table 2.14: Correlations between emotional intelligence and problem solving and concern for quality

	Problem solving ($\alpha = 0.93$)	**Concern for quality** ($\alpha = 0.89$)
Self-awareness ($\alpha = 0.92$)	0.47*	0.47*
Self-regulation ($\alpha = 0.93$)	0.45*	0.38*
Empathy ($\alpha = 0.85$)	0.41*	0.42*

* $p < 0.01$

Source: Rahim and Minors (2003)

The above correlations between the subscales of emotional intelligence and problem solving and concern for quality can be regarded as moderate in magnitude. In the context of this research, the finding implies that better problem solving and a concern for quality could be generated in managers through the development of their emotional intelligence to more advanced levels.

In the preceding discussions, a literature review was done for the purpose of creating an integrated trait emotional intelligence model and to lay a foundation for the interpretation of empirical research results.

2.10 INTEGRATION MODEL FOR EMOTIONAL INTELLIGENCE

The different emotional intelligence models, emanating from the ability, trait and competence paradigms all have strengths and weaknesses. In the sections below an integration of emotional intelligence theory will be presented to define emotional intelligence and effectively cover all the dimensions from these paradigms. This methodology seeks to explain maximum variance in the measurement model that will be developed from the theoretical integration model.

The integration model of emotional intelligence will contribute to a better understanding of the construct emotional intelligence, but also benefit this research in the development of a measurement instrument for emotional intelligence and the interpretation of assessment results.

Interaction with biographical variables, such as gender, was first discussed because it will be used to describe the data during the empirical part of this research. Variables such as personality and classical intelligence need to be considered during the development of an emotional intelligence instrument and were therefore also discussed. Lastly, variables such as job satisfaction, job involvement, organisational commitment, altruistic behaviour, withdrawal intention, performance, leadership, psychological wellness, customer orientation,

change orientation, work-family conflict, problem solving and concern for quality may also be associated with dimensions of organisational climate and were therefore also discussed.

The theory of emotional intelligence can be summarised as per figure 2.1 below.

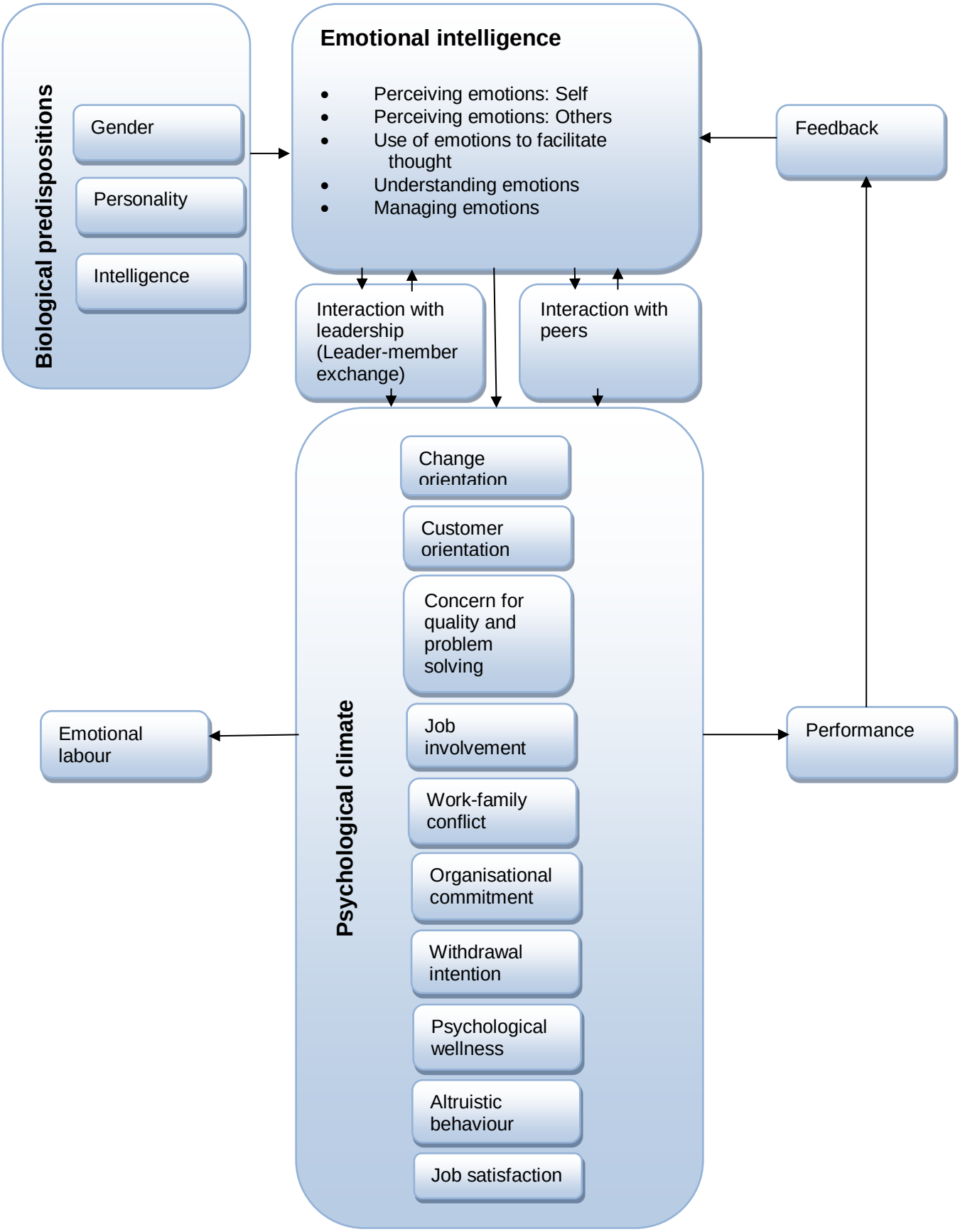


Figure 2.1: The integration model of emotional intelligence

People are born with predispositions in terms of their biological system. They vary in intellectual capacity, personality preference, gender and so forth. Personality and general intelligence (g) are known to correlate at least weakly with emotional intelligence and have a genetic component. Similarly, the individual's gender is known to correlate with emotional intelligence to the extent that females are predisposed to having higher emotional intelligence than males.

Individuals, during formal or informal interactions/socialisations with leaders and other organisational members, use their emotional abilities, sometimes during formal interactions, and at other times informally. During these encounters, they obtain (either formally or informally) feedback on their emotional behaviour with others and within the boundaries of their capacity, they develop their emotional intelligence.

During their encounters with leaders and other organisational members, their emotional intelligence informs aspects of their organisational life. Examples of such everyday encounters could include the following:

- Altruistic behaviour displayed helps building team relations and team cohesion.
- Strong transformational leadership may bring about a change orientation where new innovative ideas are considered.
- Transformational leadership may facilitate a strong, shared emphasis on quality of work and client satisfaction.

During these encounters, and especially in an organisation or team with an advanced emotional intelligence, individuals are more sensitive (understanding emotions, perceiving emotions: self & others) to each other's emotions and able to more accurately communicate (in the broadest sense of the word) with each other (use of emotions to facilitate thought, managing emotions). This facilitates the formulation and achievement of higher goals and targets and their achievement with the aid of a strong internal motivation.

2.11 CHAPTER SUMMARY

Emotional intelligence, as a research topic, is certainly active in the sociological dimension of the research model, as suggested in section 1.5.

This literature review reached the conclusion that emotional intelligence can be defined along the dimensions of

- perception of emotions: self
- perception of emotions: others
- use of emotions to facilitate thought
- understanding emotions
- managing emotions

Emotions and intelligence, as key components of the construct of emotional intelligence, were discussed individually. The etiology of emotional intelligence further provided background on the construct itself. The chapter also clustered the prominent models of emotional intelligence as trait and ability models, and compared them in order to lay a foundation for the development of a new integrated model of emotional intelligence.

Research findings, although somewhat inconsistent at times, are conclusive on the relationship with variables such as gender, personality, cognitive intelligence, job satisfaction, job involvement, organisational commitment, work-family conflict, altruistic behaviour, withdrawal intention, performance, leadership, psychological wellness, customer orientation, change orientation and a concern for quality and problem solving.

The sometimes inconsistent effect of emotional intelligence on performance hints at a more complex relationship between the two constructs than a simple linear relationship.

This concludes step 1 (Literature review: Emotional intelligence) of phase 1 of the literature review as presented in section 1.8.

The objective of this chapter was achieved in that emotional intelligence was conceptualised and a theoretical model was developed through the integration of current research. This model will inform the development of an emotional intelligence measurement instrument, lay a platform for the development of a theoretically integrated model for organisational climate and emotional intelligence, as well as for the interpretation of empirical research results during the main empirical research.

In the next chapter the construct of organisational climate will be conceptualised and a theoretical model of organisational climate will be developed. This theoretical model will lay the foundation for the development of an organisational climate measurement instrument and the platform for the development of an organisational climate measurement instrument. The theoretical emotional intelligence and organisational climate models will be integrated to develop a model of organisational climate that views emotional intelligence as a determinant. This chapter will cover step 2 (Literature review: Organisational climate and theoretical integration of emotional intelligence and organisational climate) to conclude the first phase of this research, namely the literature review.

CHAPTER 3: ORGANISATIONAL CLIMATE

3.1 INTRODUCTION

The previous chapter concluded phase 1, step 1 (the literature research on emotional intelligence) (see section 1.8: Research methodology). Step 2 (the literature research on organisational climate and theoretical integration of emotional intelligence and organisational climate) will be presented in this chapter. The aim of this chapter is to conceptualise organisational climate in a theoretical model and to conceptualise a theoretical model that views emotional intelligence as a determinant of organisational climate.

Organisational climate originates from the gestalt psychology of Kurt Lewin (Schneider, Bowen, Ehrhart, & Holcombe, 2000). According to this paradigm, organisational climate should be viewed as a gestalt, based on patterns of experiences and behaviours of people in an organisation as perceived by its members. Within the gestalt of organisational climate, individual elements of perception are integrated into a whole that represents more than the sum of its parts.

It has been established for some time now that climate can be analysed validly at three different levels (Field & Abelson, 1982). These levels are the ***individual level*** (psychological climate), ***group level*** (group climate) and ***organisational level*** (organisational climate). These levels of analysis are supported by Schneider, Ehrhart, and Macey (2013). However, some researchers like Yammarino and Dansereau (2011) lump climate and culture research together and add a fourth level of analysis, namely society or country level. The fourth level would technically only be used for the analysis of culture, for example, national culture.

This research will focus on the gestalt of climate generated at organisational level (organisational climate).

Organisational climate can be studied as a global or generic climate (a molar construct) or in a specific (focal or strategic) manner. Schneider (1975) suggested that the dimensions of climate will differ according to the purpose of the investigation and that general (generic) measures will always include dimensions that are (at least to some extent) irrelevant for a specific study. This notion gave rise to the development of specific (strategic) climate measures. The two strategic climates most widely used, according to Schneider et al. (2013), are climate for service and climate for safety.

The empirical research that follows will present climate as a generic or molar construct. This is done to make it possible to make broader inferences from the model for emotional intelligence as a determinant of organisational climate, than would be possible when climate is viewed from a specific (strategic) perspective.

Moran and Volkwein (1992) identified four different approaches to the conceptualisation of how organisational climate forms. The ***structural approach*** regards organisational climate as an objective manifestation of the organisation's structure. The ***perceptual approach*** views climate as a psychologically processed description of organisational conditions. The ***interactive approach*** sees climate as the result of interaction between organisational members and reaching a shared agreement. The ***cultural approach*** includes elements of the aforementioned but also views climate as a result of the interaction between individuals, with the same shared organisational culture.

Payne (2000) aligns to the cultural approach when he indicates that the constructs of climate and culture are close to each other, and he even calls for the construct of climate to be used as a method to measure culture.

This research will view organisational climate from the cultural perspective, and this chapter will attempt to integrate theory from various sources into an all-encompassing theoretical model of organisational climate. This model will lay the foundation for the empirical research in chapters 4 and 5. This climate model will focus on generic (molar) climate, as opposed to specific (strategic) climate.

3.2 DEFINITION OF ORGANISATIONAL CLIMATE

Although Schein's (1985) definition is somewhat vague, it succeeds in linking climate with a closely related construct, namely organisational culture. Schein (1985) defines climate as a ***surface level manifestation of the more deeply rooted organisational culture.*** In terms of his three-layer model of culture, Schein (2000) regards climate as ***a cultural artefact that results from espoused values and shared assumptions.***

Reichers and Schneider (1990, p. 22) simply define organisational climate as ***"… shared perceptions of the way things are around here …".***

An earlier definition by the same authors provides insight into what these "things" entail. They defined organisational climate as ***the shared perceptions of organisational policies, practices and procedures*** (Schneider & Reichers, 1983).

West, Smith, Lu Feng, and Lawthom (1998, p. 262) define organisational climate in a similar fashion with a simple, yet encompassing definition as the "***perceptions that organisation members share of fundamental elements of their organisation***". This definition seems to summarise the definition of Schneider (1990), who defined climate as the ***shared perceptions of employees concerning the practices, procedures, and behaviours that are rewarded and supported in a work setting.***

According to Patterson, West, Shackleton, Lawthom, Maitlis, Robinson, Dawson, and Wallace (2005, p. 380), climate generally refers to employee ***"… perceptions of organisations …"***, but they also add that at a much **broader l*evel, organisational climate describes how organisational members experience and attach shared meanings to their perceptions of this environment.*** These shared meanings are a vital part of the theory of organisational climate.

For the purpose of this research, organisational climate will be defined as *a surface-level manifestation of organisational culture that becomes accessible through the perceptions, attitudes and feelings which organisation members share about significant aspects of the organisation.*

With organisational climate defined, the next sections will discuss the origin of organisational climate and how it is formed.

3.3 ETIOLOGY OF ORGANISATIONAL CLIMATE

Schneider and Reichers (1983) and Schneider (2000) rightfully point to the importance of understanding the origins of organisational climate in order to advance in the conceptualisation and research methodology deployed. Schneider and Reichers (1983) and Schneider (2000) agree that, unlike in organisational culture research, research on the etiology of climates is not forthcoming.

Although a theoretical differentiation between climate and culture is possible, climate is formed in the context of a deeper underlying culture (Schein, 2000). It therefore seems a logical deduction to present the etiology of climate and culture together in the sections below.

3.3.1 Organisational structures

The objective aspects of the job context influence the climate that is generated by the organisation. These objective aspects include the size of the organisation, degree of formalisation, degree of centralisation of authority, span of control and type of technology used in the organisation (Schneider & Reichers, 1983).

According to Payne and Pugh (1976), a focus on these objective organisational aspects in the explanation of the etiology of organisational climate has given light to the structural approach to the etiology of organisational climate.

While the influence of the objective aspects of the organisation undoubtedly impacts on how climates are generated, empirical evidence has sometimes been contradictory and this approach has delivered a conceptual problem as it fails to explain why sub-climates form in the same organisation (Schneider & Reichers, 1983).

3.3.2 Selection, attraction and attrition

The selection-attraction-attrition process produces a relatively homogeneous workforce in organisations. It is therefore to be expected that similar employees attach the same meanings to organisational events, which are encapsulated in climates (Schneider & Reichers, 1983).

As mismatched employees slip through the selection process, and these employees realise the incongruence between their expectations and reality, they may leave the organisation. Hence the process of attrition further increases homogeneity among organisational members (Schneider & Reichers, 1983).

This approach, however, seems to have conceptual problems with the explanation of how sub-climates form in the same organisation (Schneider & Reichers, 1983).

At a deeper, cultural level, consideration may directly or implicitly be given during the selection process to a good match between the core values of the organisation and the personal values of the candidate (Martins & Martins, 2003).

Individuals may also gain information on the organisation and, based on their perceived match between organisational values and individual values, decide to apply for a position, or not (Martins & Martins, 2003). In this sense, the organisation attracts individuals with matching values.

When new employees join an organisation, the organisation exposes itself to the potential risk of eroding its core values, beliefs, assumptions and ideologies. This erosion does not only change the culture of the organisation over time, but also changes the perceptions of employees about significant aspects of the organisation (climate). To prevent the erosion of the organisation's culture and climate, an effective newcomer socialisation process is necessary. Newcomer socialisation brings new employees into the organisation's culture, and creates a "fit" between the organisation and employee (Martins & Martins, 2003).

Major (2000) describes the essence of the socialisation process to move new recruits from being *outsiders* of the organisation to becoming insiders.

Researchers and theoreticians differ in their conceptualisation of the stages that socialisation undergoes, although three stages generally describe it (Gibson et al., 2012; Robbins & Judge, 2013). The three stages are labelled here as anticipation, accommodation, and adaptation/*change (role management)*.

Anticipation encompasses all the learning required before the newcomer joins the organisation and includes his/her tertiary qualifications, internships and so forth.

From an organisational perspective, the primary focus during the *anticipation stage* is on the activities of recruitment, selection and placement. During recruitment, the organisation typically includes job-related information, but the emphasis here is to also include organisational information (pay, promotion, policies, work group characteristics, etc.).

Selection and placement practices are also important sources of anticipation socialisation to existing employees as it contains important information about career paths and possible advancement for the individual.

During the second stage, *accommodation*, the newcomer sees what the organisation is really like. The newcomer's expectations about the job, co-workers, the boss and the organisation in general meet with reality.

According to Gibson et al. (2012), the organisational focus is around designing orientation programmes, structuring training programmes, providing performance evaluation information, assigning challenging work and assigning demanding bosses.

During the third phase, *role management*, differences between expectation and reality become focal points.

Conflicts arising from role management impact work satisfaction and staff turnover negatively and therefore require effective and timely intervention. Sincere efforts from the organisation to resolve off-the-job conflict (often by professional counselling) also enhance the retention of employees.

After the role management phase the individual will have accepted the values and norms of the new organisation and work group. The individual will effectively have moved from being an outsider to an insider.

3.3.3 Symbolic interactions

Symbolic interactionalism specifies the nature and content of interactions between organisational members that give rise to climates. As employees communicate with one another (respond to, define and interpret elements of the situation) in their unique manner, distinct subgroups form in the organisation (Schneider & Reichers, 1983).

Schneider and Reichers (1983) indicate that the founders and original members of an organisation already “determine” the organisational climate by the organisational structures and recruitment practices they put in place.

Martins and Martins (2003) argue that (at a deeper level) culture creation occurs in three ways, namely the appointment of employees who think and feel similar to the founders, through indoctrination and socialisation to match the thinking and feeling of founders and through the founders’ acting as role models and the ultimate internalisation of their beliefs, values and assumptions.

Schein (1985) emphasised the importance of leadership behaviour in the context of its impact on how groups define and solve problems of external adaptation and internal integration. Leaders’ actions consciously and sub-consciously communicate the assumptions (embedded as acceptable thoughts, feelings and behaviours) underlying acceptable solutions to organisational problems.

Similarly, Zammuto, Gifford, and Goodman (2000) regard management ideologies as the foundation for the assumptions, values and beliefs upon which

an organisation's culture and climate are based. Differences in management ideologies therefore lead to differences in organisational culture.

Lewin et al. (1939) introduced the construct of climate (labelled social climate at the time) to study the effect of democratic, authoritarian and laissez-faire leadership styles in samples of boys' groups. The influence of management and leadership has since become so integral to the theory of organisational climate that it is hardly surprising to find researchers such as Howard, Foster, and Shannon (2005) who report significant correlations between management/leadership and organisational climate.

Senior managers therefore guide the organisation in terms of their management ideology. Their behaviour, implicitly or explicitly, communicates acceptable behavioural norms which create a shared perception about significant aspects of the organisation (group/organisational climate) with its members.

Although the etiology of climate today still presents a gap in climate research, the etiology of climate and culture at a deeper level, may still best be explained in terms of the framework set by Schneider and Reichers (1983). They view climate as a function of objective organisational structures, the selection-attraction-attrition process, and the symbolic interaction between members. Firstly, the objective work context, as informed by culture, determines how employees will perceive their workplace. Secondly, employee characteristics, determined by requirements laid down in a cultural background, determine the perceptions that employees form about their work environment. Lastly, the symbolic interaction between members (including management) will influence how climates are formed. Again these interactions take place within the cultural arena set in the organisation.

With organisational climate defined, and the etiology presented, it becomes apparent how interdependent climate and culture are. Before explaining the

similarities and differences between the two constructs, the transfer and learning of culture will be discussed. This will contribute to a better conceptualisation of organisational climate.

3.4 COMMUNICATION AND LEARNING OF CULTURE

Because climate can be regarded as a surface-level manifestation of culture (Schein, 1985), it follows logically that at least some level of alignment between the two constructs can be assumed to be in place in an organisation at any given time. Hence the development and transfer of organisational culture cannot happen in isolation. An organisation's culture has to influence the climate it generates.

In this section, the communication and learning of culture are presented as significant aspects in the transfer of culture to newcomers in the organisation. Although the focus here will be on the transfer of (deeper levels of) culture, it follows logically that the more superficial climate is implied.

Culture is communicated and learnt in a number of ways, of which the most important are storytelling, rituals, material symbols and language (Robbins & Judge, 2013).

3.4.1 Stories

Stories mostly develop spontaneously, although some organisations try to influence this element of culture acquisition. These stories typically deal with events about the founders, rule-breaking, successes, workforce downscale, employee relocations, reaction to past mistakes and organisational coping. The stories are usually well known through the organisation and provide legitimacy and explanations for current practices (Robbins & Judge, 2013).

Schermerhorn, Hunt, and Osborn (1997) differentiate between a story and a saga. They regard sagas as embellished heroic accounts of the story of the founding of an organisation. Sagas fulfil a vital function, namely to inform newcomers about the real mission of the organisation, how the organisation operates, and how individuals can fit into the organisation.

3.4.2 Rituals

Rituals are repetitive sequences of activities whose purpose is to reinforce the organisation's core values, most important goals and important people (Robbins & Judge, 2013). Schermerhorn et al. (1997) state in this regard that Japanese workers and managers commonly start their work day with group exercises and singing of the company song. Schermerhorn et al. (1997) also note that it is common to establish different rituals in different parts of the organisation, resulting in the formation of sub-cultures.

3.4.3 Symbols

Schermerhorn et al. (1997) define cultural symbols as any object, act or event that serves to transmit cultural meaning. Rafaeli and Worline (2000, p. 73) regard symbols as "*visible, physical manifestations of organisations and indicators of organisational life … things that can be experienced with the senses and used by organisational members to make meaning".*

Robbins and Judge (2013) identify the layout of corporate headquarters, presence or absence of a corporate aircraft, executive perks, furnishings, size of office and corporate dress as examples of symbols. These symbols serve the following four functions in organisations (Rafaeli & Worline, 2000):

- to reflect culture (eliciting emotional responses from organisational members and represent organisational values and assumptions)

- to elicit internalised norms of behaviour (linking emotional responses and interpretations to organisational action)
- to frame conversations about experience (facilitating communication between organisational members on vague, controversial or uncomfortable organisational issues)
- To integrate the entire organisation into a system of meaning (help individuals integrate their experiences into coherent systems of meaning)

3.4.4 Language

Many organisations and sub-units use language to indicate membership of a particular culture or sub-culture. New members of the culture learn and use acronyms and jargon to display their acceptance of norms and their membership.

New employees are often overwhelmed by the in-group language, but after they have acquired the language, it acts as a uniting force between members (Robbins & Judge, 2013).

The organisation in which this research was conducted also *transfers* its culture to newcomers.

Stories about the leadership of the organisation are communicated formally during an induction programme as well as during informal communication by managers, team leaders or peers.

Certain rituals such as the annual performance award function serve as recognition to individual contributors to the organisation's success over the year, but also communicate the importance of high performance to the organisation and inculcate a high performance culture in the organisation.

The corporate emblem represents values that are crucial to the organisation and are shared during formal induction training. Other symbols include the annual report, electronic newsletters, corporate and national flags, as well as framed photographs of prominent leaders at the entrances of branch offices.

Acronyms about human resource systems and operational systems are transferred to newcomers to include them in particular groups. Different operational areas frequently use different slang, phrases or words that distinguish them from one another.

3.5 CLIMATE AND CULTURE

The difference between organisational climate and organisational culture is a theoretical one. In practice the two constructs are so closely intertwined that the terminology is often used interchangeably (although technically incorrectly so) (Moran & Volkwein, 1992). The constructs have indeed become, as Denison (1996) puts it, different perspectives on the same phenomenon. Ostroff, Kinicki, and Muhammad (2013) further illustrate the point when they indicate that climate may be viewed as the lens through which the deeper layers of culture become accessible.

3.5.1 Organisational culture defined

Schein's (1985, p. 9) definition which is almost classic by now, states that organisational culture is "*a pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valuable and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems".*

Ostroff et al. (2013) summarise culture as pertaining to *fundamental ideologies and assumptions and it is influenced by symbolic interpretations of organisational events and artefacts.*

For the purposes of this research, culture will be viewed as the fundamental ideologies and basic assumptions, influenced by the symbolic interpretations of organisational events and artefacts. Culture is invented, discovered and developed by a group to cope with problems of external adaptation and internal integration and shared with newcomers as the way to deal with organisational problems.

Schein (2009) further argues for the existence of a three-layer cultural model. The first layer comprises **artefacts** and creations that are visible but often not interpretable. Examples include annual reports, newsletters and furnishings. The second layer comprises **values** or things that are important to people. Values are conscious, affective desires or wants. The third layer comprises the **basic assumptions** that people make that guide their behaviour. Included in this layer are the basic assumptions that inform the perceptions and feelings of individuals about their work environment, work relations, performance and so forth.

A diagrammatic representation of the basic model of Schein (2009) is provided in figure 3.1 below.

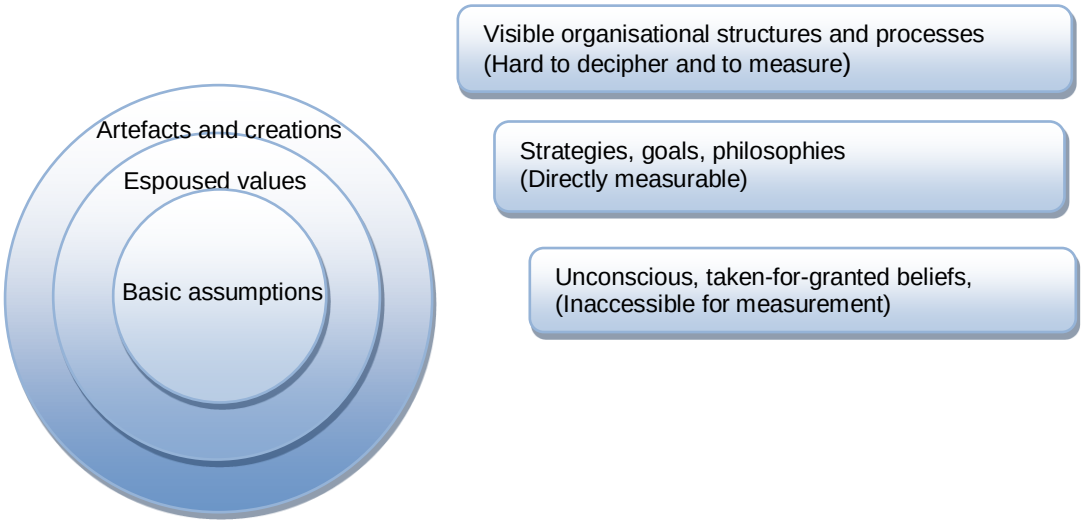


Figure 3.1: Diagrammatic representation of Schein's cultural model

3.5.2 Differences between climate and culture

Although the two constructs are close to each other, organisational climate is not the same as organisational culture. The differences are summarised in table 3.1 below.

Table 3.1: Differences between climate and culture

Dimension	Climate	Culture
Basis of the construct (Peterson & Spencer, 1990)	Perceptions, attitudes and feelings about organisational life	Shared values, assumptions, beliefs and ideologies of members
Stability (Moran & Volkwein, 1992)	Relatively enduring characteristics of the organisation	Highly enduring characteristics of the organisation
Pace of evolution (Moran &Volkwein, 1992)	Forms quickly	Forms slowly
Tempo of change (Denison, 1996)	Changes quickly	Changes slowly
Time span (Ostroff et al., 2013)	Can be sensed immediately	Takes time to decipher
Level of awareness for individuals (Moran & Volkwein, 1992).	Exists on a level that penetrates consciousness and immediate organisational realities. Exists at levels where awareness is most accessible and where behaviour is visible.	Exists at a level that is preconscious and somewhat removed from immediate organisational realities. Because it is deeply embedded it becomes inaccessible and not directly observable.
Accessibility (Denison, 1996)	Easy - through objective measurement of perceptions, attitudes and feelings	Difficult – fundamental shared beliefs are difficult to access directly and objectively
Discipline originating from (Denison, 1996)	Psychology	Sociology and anthropology
Theoretical foundations (Denison, 1996)	Lewinian field theory	Social construction and critical theory
Methodology employed in research (Denison, 1996)	Traditionally quantitative survey data, but recently overlaps with qualitative research methodology traditionally associated with culture research	Traditionally qualitative field observation, but recently overlaps with quantitative research methodology traditionally associated with climate research
Level of analysis (Denison, 1996)	Surface-level manifestations	Underlying values and assumptions

From the above it is clear that organisational climate forms and changes quickly, and is easily quantifiable through perceptions of individuals about surface level manifestations of culture. Culture, however, is a far more enduring construct and takes longer to form, change and decipher through mostly qualitative analysis of values, underlying assumptions and ideologies.

3.5.3 Similarities between climate and culture

From the discussion above, the reader might be led to conclude that the two constructs organisational climate and organisational culture are far removed from each other.

In reality they overlap and the terms, *climate* and *culture* are often (although technically incorrectly) used interchangeably. Regarding the relationship between the two constructs, Schein (2000) argues that climate can only be changed to the degree that it is congruent with underlying assumptions (cultural elements). A climate of teamwork can therefore not be created within a culture that emphasises individual competitiveness. This view is congruent with that of Moran and Volkwein (1992) who requested that change interventions of organisational climate should consider the deeper patterns of the organisation's culture.

Table 3.2 below highlights the similarities between organisational climate and organisational culture.

Table 3.2: Similarities between climate and culture

Dimension	Climate and culture
Definition	Both constructs view the internal social-psychological environment as a holistic, collectively defined context.
Theoretical issues	Both areas struggle with the dilemma that the context is both created and determined by interaction. The definition of the constructs appears to differ between researchers. Both constructs can be analysed at multiple levels. Researchers have concluded with different dimensional structures for each construct. In both areas, problems between the organisational whole and its constituent parts (subcultures/sub-climates) emerge.
Content and substance	Climate theory and dimensions overlap with quantitative culture research.
Research methodology	Qualitative climate research (which used to be associated with culture research) as well as quantitative culture research (which used to be associated with climate research) have recently emerged.
Theoretical foundations	Climate has its roots in Lewinian field theory, but research has crossed/combined the traditions with those of social constructionism (which is traditionally associated with culture research). Similarly, culture has its roots in social constructionism, but research has crossed/combined the traditions with those of Lewinian field theory (which is traditionally associated with climate research).

Source: Adapted from Denison (1996)

3.5.4 Integration of climate and culture

Researchers like Moran and Volkwein (1992), Denison (1996), Payne (2000) and Ostroff et al. (2013) have called for the integration of climate and culture research and propose that climate (as a surface manifestation of culture) may be used as a medium to access culture. Culture, by its very definition is a complex construct to measure. Schein (2009) even goes so far as to say that culture cannot be measured by culture surveys.

In view of the considerable overlap between the constructs of organisational climate and organisational culture, as mentioned in section 3.5.4 above, a call for integrative research seems both logical and sensible.

The integration between organisational climate and organisational culture is frequently represented using the analogy of different layers of an onion. In terms of this analogy, the outside layers represent perceptions, attitudes and feelings which are easy to access and represent organisational climate in the strict sense of the word. Values are found closer to the core, and although accessible in terms of measurement, they may deliver somewhat superficial measures of organisational culture. Closest to the core of the model, the essence of organisational culture, namely basic assumptions and fundamental beliefs, are found. These aspects are extremely difficult (if not impossible) to measure accurately. Hence the closer one moves towards the centre, the closer one comes to the essence of culture, but the more inaccessible the construct becomes in terms of measurement (Peterson & Spencer, 1990).

Although climate and culture can be argued to be different perspectives of the same phenomenon, and although the integration of climate and culture makes perfect sense from a theoretical perspective, it ironically adds to the differentiation of measurement approaches to this (single) phenomenon. From section 3.5.3 it

can be deduced logically that circumstances should dictate which perspective should be followed to measure culture (in the broad sense).

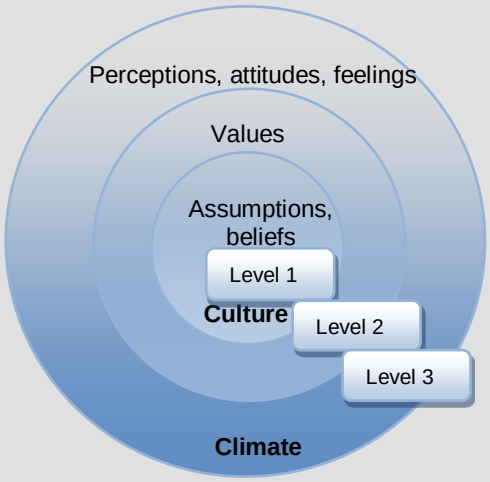
Table 3.3 provides a summary of the criteria that will be followed in research as to which level of measurement is deemed most appropriate and under which circumstances.

Table 3.3: Integration of climate and culture

Levels of measurement	Construct traditionally measured	When to measure
Level 1 Basic assumptions and fundamental beliefs	Culture	The cultural elements of basic assumptions and fundamental beliefs form and change slowly. This measurement level is more appropriate in highly stable and enduring environments. As culture is collectively shared, changing (even slowly changing) environments would not provide sufficient time to form or change basic assumptions and fundamental beliefs that organisational members subscribe to and would therefore deliver invalid measurements.
Level 2 Values	Culture	Values form and change slowly and this measurement level is therefore more appropriate in relatively stable environments. As culture is collectively shared, changing environments would not allow for sufficient time for similar values to form or change to constitute a valid measure of culture.
Level 3	Climate	Perceptions, attitudes and feelings form

Perceptions, attitudes and feelings		and change relatively quickly and are therefore more appropriate than levels 1 and 2 in slowly changing environments. As climate is collectively shared by organisational members, use in rapidly changing environments would allow sufficient time for proper socialisation. Climate measurements are inappropriate under such conditions and would deliver invalid measures.

The empirical research that follows will measure organisational climate, as opposed to organisational culture. The reason for this is that climate is more accessible and easier to quantify than culture.



Source: Adapted from Schein (2009)

Figure 3.2: Diagrammatic representation of the integration between climate and culture

3.5.5 Competing values theory as a tool for integrating climate and culture

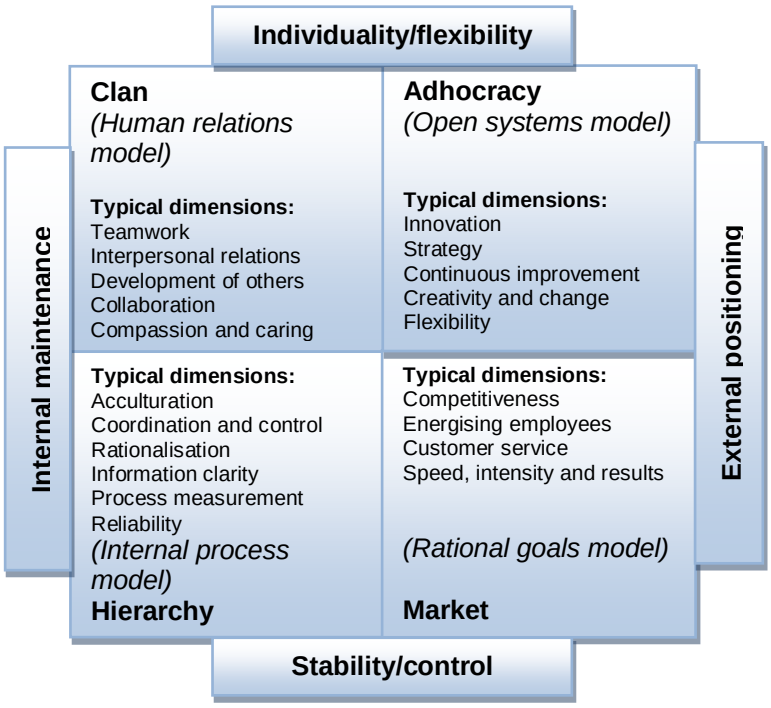
The competing values framework was originally intended as a model of organisational effectiveness. Its four quadrants (human relations model, open systems model, internal process model, and rational goal model) essentially describe different outcomes and means by which they are likely to be attained. Each quadrant presents a set of valued outcomes and a different management ideology about how to achieve these outcomes (Zammuto, Gifford, & Goodman, 2000). Cameron and Quinn (2006, p. 32) differ somewhat from this view, and according to them, the competing values theory was designed *to narrow and focus the search for key cultural dimensions*. In this sense the model is excellent for the comparison of different cultural models (including their different dimensions).

Figure 3.3 below is a diagrammatic representation of the competing values framework. The theory of competing values groups cultural dimensions into two dichotomous sets of higher-order dimensions which organises indicators into four major clusters. The higher order (main dimensions) are *flexibility and discretion* versus *stability and control;* and, *internal focus and integration* versus *external focus and differentiation*. When these two dichotomous sets of values are presented as the x and y axes (see figure 3.3), four quadrants appear. Each quadrant represents a unique organisational model, with its own basic assumptions, orientations, and values, which are the same elements as organisational culture (Cameron & Quinn, 2006). According to Zammuto et al. (2000), the four quadrants describe different valued outcomes that define effective organisational performance and the means of attaining this performance. Each quadrant therefore represents a set of valued outcomes and a coherent managerial ideology about how to attain them.

The above discussion shows that the competing values framework might be invaluable in the theoretical integration of different organisational climate models, as well as integrating organisational climate and organisational culture.

The following reasons support this notion:

- Because climate is aligned to culture, the competing values framework facilitates the comparison of the dimensions of different generic (molar) climate models with each other in a structured manner, emphasising organisational effectiveness. The climate dimensions could be classified to fit the more superficial levels of the four cultural models to ensure the dimensions of the climate model are comprehensive (or representative of the total construct).
- The competing values framework provides for the clustering of climate dimensions under supporting values (which, by definition is culture), and therefore aligns the constructs of organisational climate and organisational culture into a comprehensive theoretical perspective.
- The competing values framework implicitly recognises the effect of managerial leadership on organisational climate and culture through the managerial ideologies about how to achieve organisational outcomes that are instrumental to organisational effectiveness.



Source: Adapted from Cameron and Quinn (2006)

Figure 3.3: The competing values framework

In contrast to the competing values framework, James et al. (2008) promote a hierarchical model of climate where 17 second-order dimensions, and four first-order dimensions roll up to a general psychological climate (PC_g). Their first-order dimensions are as follows: Leader support and facilitation; role stress and lack of harmony; job challenge and autonomy; and workgroup cooperation, warmth and friendliness.

Similar to the competing values framework, researchers like Denison (2001) and Patterson et al. (2005) cluster their climate-like first-order dimensions, under (higher-order) values and thereby succeed in integrating the constructs of climate and culture into one conceptual measurement model. However, it is still recognised that Denison's focus is on culture, while Patterson et al. (2005) focus on climate. The competing values framework seems to succeed in

operationalising perception, feelings and attitude on its first level and the deeper values, associated with culture on the second, higher level.

The use of the competing values theory therefore appears to offer a conceptual framework whereby the theory of organisational climate and organisational culture can be combined in the same model. Further, it offers a mechanism whereby the different climate dimensions of climate models can be organised into four comparable quadrants. This organisation of climate dimensions might promote the comparability of different organisational climate models and also indicate oversight of important dimensions by a particular generic climate model. The researcher utilised the theoretical model of the competing values framework in the development of an organisational climate model to ensure that a balanced measurement of organisational climate was obtained in the main empirical research in chapter 5.

As an empirical research model, the competing values theory has not been tested extensively and little is known about the validity of the model. The researcher regards it as an invaluable tool in the theoretical clustering of climate models for comparisons between them, as well as integrating the constructs of climate and culture. However, throughout the research process, the researcher was aware that it still requires extensive validation before it can be accepted as an empirical research model.

3.6 MODELS OF THE COMPETING VALUES FRAMEWORK

In this section, the focus will be on prominent theoretical models from the competing values framework and generic (molar) organisational climate. A further focus is that the models will have a strong emphasis on organisational effectiveness and performance. As the competing values framework effectively bridges the theoretical gap between the constructs of organisational climate and

organisational culture, the main focus here is on models that operationalise climate and culture.

Two models that operationalise the competing values framework will be discussed critically. They are the models of Denison (2001) and Patterson et al. (2005).

Empirical research supporting the validity of the competing values theory is thin and for this reason a third model, that of Wiley and Brooks (2000) will also be discussed within this theoretical framework of the competing values theory and compared with the other "true" competing values models. This model was expanded and validated by Gerber (2005) (see annexure 1) under South African conditions, but the work has not been published. The literature research that follows attempts to theoretically compare the instruments and indicate, if possible, *how* this model could be fitted validly into the competing values theory to reap the benefit of the integration of climate and culture in the same theoretical model.

A theoretical model of organisational climate will thereafter be presented to lay a foundation for the empirical research.

3.6.1 Denison's model

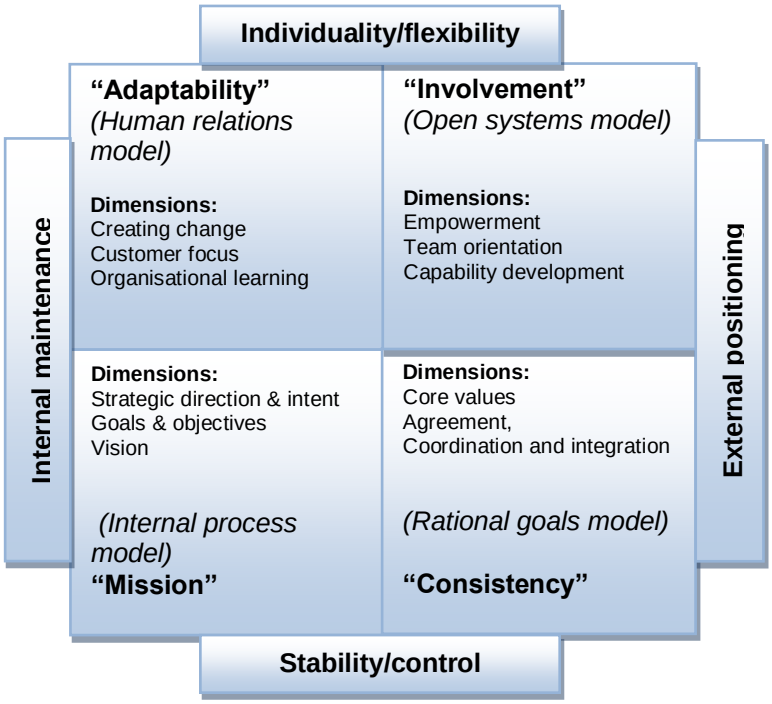
Although Denison's model is generally labelled an organisational culture model, it should be noted that the first-order dimensions, as well as the items measuring them, closely resemble climate. Ostroff et al. (2013) confirm this notion and indicate in this regard that Denison's model rotated the competing values theory's dimensional axes pertaining to structure and focus to bring their unique culture types to light.

The following items serve as examples taken from Denison's climate model:

- *Most employees are highly involved in their work* (empowerment within the involvement higher-order dimension).
- *Leaders and managers "practise what they preach"* (core values within the consistency higher-order dimension).
- *The way things are done is very flexible and easy to change* (creating change within the adaptability higher-order dimension).
- *There is a long-term purpose and direction* (strategic direction and intent within the mission higher-order dimension) (Denison, 2001, p. 369).

These dimensions are clustered as values, mirroring the competing values framework as presented in figure 3.4.

Denison clusters three climate-like dimensions under each of the four competing values quadrants. As the four quadrants represent values, this level of measurement (the second-order dimensions) theoretically represents culture. The dimensions of Denison's (2001) model are shown below in figure 3.4.



Source: Adapted from Denison (2001)

Figure 3.4: Denison's model

3.6.1.1 Validity and reliability of the instrument

The validity of the model is supported by the research of Denison, Janovics, Young, and Cho (2006). Statistical validation involved a sample of 35 474 employees in 160 organisations.

Although the cross-loadings between dimensions were omitted from the validation research, the exploratory factor analysis (N = 30 808) yielded item loadings on to the expected dimensions. In this way, support was provided for the underlying first-order dimensional structure of the questionnaire. Strong factor loadings of exploratory factor analysis also support the second-order dimensional structure of the questionnaire (although the cross-loadings appeared to have been omitted again) (Denison et al., 2006).

In view of the supportive exploratory factor analysis results, it was expected to find supportive model fit indices for first- and second-order confirmatory factor analysis (N = 30 808). With support of RMSEA (= 0.054) (see table 4.3 in section 4.9.10) for the first-order dimensional structure, the dimensional structure of the model was confirmed (Denison et al., 2006).

The reliability of the measurement instrument, as indicated by Cronbach's coefficient alpha, ranged between 0.70 and 0.86 for the first-order dimensions. The majority of these dimensions delivered rather moderate Cronbach alpha values, ranging between 0.70 and 0.80 (Denison et al., 2006).

The above validation research is congruent with earlier statistical validation done by Cho (2000) (N = 36 542). The model fit indices, exploratory and confirmatory factor analysis as well as reliability indices (Cronbach alpha) are noticeably similar, and thus supportive of the model.

3.6.1.2 South African validation

a) Reliability of the scale

Denison's model was researched in a South African environment by Davidson (2003). The internal consistency reliability for all the first–order and the second-order dimensions was weaker than the reliability coefficients reported by Denison et al. (2006). Six out of the 12 first-order scales yielded Cronbach alpha coefficients lower than 0.70. Two of them were lower than 0.60. The original reliability statistics and those of the South African sample are compared in table 3.4 below. The reliability reported by Denison et al. (2006) seems fairly mediocre and the analysis of Davidson (2003) reported poor support for the reliability of the scale in the South African environment.

With validity being a prerequisite for reliability, it is hardly surprising that Davidson (2003) concluded that the factorial validity of the scale requires more research.

Table 3.4: Comparison between reliability indices obtained by Denison and Davidson

		Original sample (Denison et al., 2006)	**South African sample (Davidson, 2003)**
Second-order dimension	**First-order dimension**		
Involvement		**0.89**	**0.84**
	Empowerment	0.76	0.71
	Team orientation	0.82	0.79
	Capability development	0.70	0.56
Consistency		**0.88**	**0.81**
	Core values	0.71	0.61
	Agreement	0.74	0.59
	Coordination and integration	0.78	0.74
Adaptability		**0.87**	**0.82**
	Creating change	0.76	0.64
	Customer focus	0.74	0.68
	Organisational learning	0.74	0.63
Mission		**0.92**	**0.90**
	Strategic direction and intent	0.86	0.84
	Goals and objectives	0.80	0.74
	Vision	0.79	0.74

From the above it is clear that Denison only obtained reliability indices (as measured using Cronbach's alpha) in excess of 0.80 for three of the 12 dimensions. When Davidson's Cronbach alpha values are compared, it is clear that all the reliability indices were lower for the higher-order dimensions (values)

as well as the lower-order dimensions for the South African validation in comparison with Denison's validation.

The second-order dimensions of the adaptability scale all delivered Cronbach alpha values in the 0.60 range and some sub-dimensions achieved reliability values in the 0.50 range. One possible explanation for this is that cultural measurement might be differently interpreted in the South African population, characterised by rich diversity.

b) Validity of the scale

Davidson (2003) did not report exploratory factor analysis results, but the Chi-square and RMSEA model fit indices for the first-order structure are reported and compared to those of Denison et al. (2006) in table 3.5 below.

Table 3.5: Comparison between validity indices obtained by Denison and Davidson

	Original sample (Denison et al., 2006)	**South African sample (Davidson, 2003)**
Chi-square	157276.98	108.90
RMSEA	0.054	0.062

Although support was obtained by both researchers, Davidson (2003) found less support in her confirmatory factor analysis than Denison et al. (2006). Davidson's RMSEA still falls within an acceptable range (see table 4.3 in section 4.9.10).

In addition to the analysis above, both authors reported high correlations between second-order dimensions. It therefore appears reasonable to conclude that the factorial validity of the model is not strongly supported by the original validity study of Denison et al. (2006). With the added complexities because of South Africa's cultural richness, it is questionable if the model could be ethically applied without any revisions.

When the clusters of dimensions of Denison's model are closely compared to those of the competing values theory, it is clear that the dimensions do not match perfectly. Denison seems to have rotated his axis to bring unique dimensions to the fore.

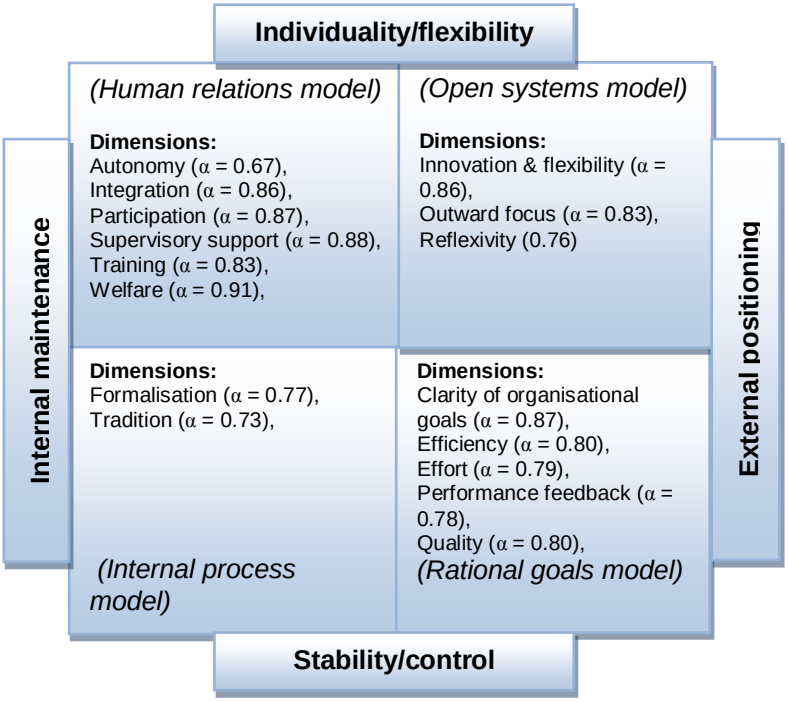
It should also be noted that Denison's validation studies (Denison et al., 2006; Cho, 2000) used large samples of employees, across a number of different organisations. The methodology employed to use the data of more than one organisation to perform factor analysis, may not fully convince on the construct validity (***organisational*** climate/culture) of the model as the influence of organisational factors was not controlled and cannot therefore be ruled out as having an influence on the factorial validity results.

The South African research is significant for this research because it does not support the validity of the model in a South African context with its rich cultural diversity. It is also noted that the South African sample differs from the validation samples in that it is considerably smaller (although it satisfies the minimum criteria for performing the procedures), and was hosted in a single organisation. More independent research into the validity of the model context would be required to be conclusive about the validity of the model in general terms, although the indication is that it does not provide for the cultural richness of South African organisations.

3.6.2 The Organisational Climate Measure (OCM)

The Organisational Climate Measure (OCM) of Patterson et al. (2005) as a measurement instrument of organisational climate is presented next. The OCM, like Denison's model, was constructed within the competing values framework, implying a focus on organisational effectiveness (Patterson et al., 2005).

The climate dimensions were clustered as under the competing values quadrants.



Source: Adapted from Patterson et al. (2005)

Figure 3.5: The Organisational Climate Measure

3.6.2.1 Validity and reliability of the instrument

Exploratory factor analysis yielded strong factor loadings on to the expected dimensions and although the cross-loadings were seemingly omitted, support for the dimensional structure was evident (n = 6 756) (Patterson et al., 2005).

The goodness-of-fit indices for the first-order dimensional structure are shown in table 3.6.

Table 3.6: Model-fit indices of the Organisational Climate Measure

Index	Value
NFI	0.84
NNFI	0.85
CFI	0.86
RMSR	0.041

Source: Patterson et al. (2005)

Patterson et al. (2005) used the normal fit index (NFI), the non-normal fit index (NNFI) and the comparative fit index (CFI) instead of the chi-squared statistic as the latter becomes inappropriate in view of the large sample size (n = 6 756).

The fit indices fall slightly short of the recommended 0.90 – cut-off value. This shortfall can be attributed to the large sample that was used, although the researchers did not repeat the research using a smaller sample and thus one cannot be absolutely certain.

The root mean square residual (RMSR) was calculated in addition to the fit indices and the obtained value falls well within the recommended 0.05, indicating that the model does predict the observed covariances among items well.

In view of the above, some evidence (RMSEA < 0.50) of the factorial validity is available, but in view of the shortfall of the fit indices (all smaller than 0.90) it cannot be stated without any doubt.

Although the competing values framework attempts to provide a balanced measurement of the organisation's culture/climate, it is doubtful whether the two climate dimensions of the internal process quadrant can sufficiently represent *internal processes.*

The measurement model has not yet been validated extensively and independently. Patterson et al. (2005) have, however, undoubtedly succeeded in

drawing attention using comprehensive validation research in which, inter alia, they have succeeded in obtaining (at least partially) support for the factorial structure of the measurement instrument.

The methodology of using a sample of responses from 49 different organisations for validation purposes of the instrument has to be questioned when the aim of the research is ***organisational*** climate. Strictly speaking, the possibility that the factor loadings from the factor analysis might have been influenced to cluster around certain factors as a function of differences between organisations that participated in the research, cannot be ruled out.

The data collection method within the sample further differed between organisations in that 17 companies chose to have researchers administer the questionnaire to employees and a postal survey was conducted in the remaining 37 companies. Again the risk of the difference between the two data collection methods being responsible (to some unknown extent) for items loading or not loading on to factors cannot be ruled out.

Further, independent validation research could clear the above uncertainties.

It is disheartening that there seem to be measurement problems with both instruments that applied the competing values theory in a climate/culture environment.

3.7 MODEL OF ORGANISATIONAL CLIMATE

The focus of this research will be on the generic (molar) organisational climate with an emphasis on organisational effectiveness. The model of Wiley and Brooks (2000) is applicable, and will be discussed below.

3.7.1 Wiley and Brooks' model

Although Wiley and Brooks' (2000) model was not developed within the framework of competing values, it was developed through consideration of the different dimensions used in a variety of climate measurement instruments that were related to customer satisfaction and business performance in order to create a well-balanced generic organisational climate model.

The model of Wiley and Brooks was developed within a framework of a linkage research model. Subsequent research undoubtedly supports the model's strong relationship with organisational effectiveness (Wiley & Brooks, 2000).

The dimensions of organisational climate, according to the original model of Wiley and Brooks (2000), may be clustered as follows:

- **Leadership practices**
  Customer orientation
  Quality emphasis
  Involvement/empowerment
  Employee training
- **Employee results**
  Information/knowledge
  Teamwork/cooperation
  Overall satisfaction
  Employee retention

Gerber (2005) adapted Wily and Brooks' (2000) model for a South African population, although this research was not published. The model was adapted to include a dimension of *diversity* (a strong characteristic of South African organisations), as well as the strategic dimensions *vision* and *values*. The dimensions of *managerial leadership* and *individual importance* were also

measured more explicitly and the items were written to reflect the South African context.

3.7.1.1 Validity and reliability of the instrument

Little is known about the validity and reliability of Wiley and Brooks' (2000) climate model.

Although not published, the factorial validity of the adapted model by Gerber (2005) is claimed in the test manual (see annexure 1) to be supported by exploratory factor analysis. The reliability of the instrument appears to be promising, with Cronbach alpha values in the moderate-to-strong range and a strong overall reliability ($\alpha = 0.967$).

The model of Wiley and Brooks (2000) is well-documented to link with bottom-line indicators such as customer satisfaction, responsiveness and profit as a percentage of revenue. Linkages between organisational climate and organisational performance are also a key consideration in the organisation in which this research was conducted.

An adaption and expansion of the model within the population in which this research was conducted appears promising, but remains unconfirmed.

The adapted model does not have an empirically substantiated higher-order dimensional structure that compares to the competing values theory and the model was therefore also not presented as such.

In previous sections, the competing values theory was presented as a theoretical model that could link culture and climate. Unfortunately the two prominent models based on the competing values model disappointed in terms of their psychometric properties.

Another promising theoretical model, that of Wiley and Brooks (2000), was presented. Further elaboration on the model in the environment in which the empirical research in this study took place looked promising, especially because the model is well-documented to link with organisational performance, although its validity is not confirmed. The higher-order structure of this model is unknown and its design is not intended to reflect the competing values framework.

In the next sections, the competing values framework will be utilised to compare the three models. This will lay a theoretical foundation to expand the adapted model of Wiley and Brooks (2000) to develop a model of climate, aligned to culture, and focused on organisational effectiveness and performance. This model will be used for the empirical research that follows and will be labelled the *High Performance Climate Questionnaire (HPCQ)*.

3.8 THEORETICAL INTEGRATION OF CLIMATE AND CULTURE MODELS ON THE BASIS OF THE COMPETING VALUES FRAMEWORK

The model of Wiley and Brooks (as expanded in a South African context by Gerber (2005), was not developed according to the competing values framework and a direct comparison is therefore complicated. Below, the dimensions of this model are clustered according to the competing values framework in order to make a theoretical comparison between the dimensions of the three models.

Table 3.7: Theoretical comparison between the dimensions of the Denison (2000), Patterson et al. (2000) and expanded Wiley and Brooks' (2000) models

Model (second-order dimension)	Denison (2001)	Patterson et al. (2005)	Expanded model of Wiley and Brooks (2000);Gerber (2005)
HR	Creating change Customer focus Organisational learning	Autonomy Integration Participation Supervisory support Training Welfare	Involvement/empowerment Teamwork Overall satisfaction Retention Individual importance Employee training
Open systems	Empowerment Team orientation Capability development	Innovation and flexibility Outward focus Reflexivity	Vision Values Diversity
Rational goals	Core values Agreement Coordination and integration	Clarity of organisational goals Efficiency Effort Performance feedback Quality	Client services orientation Goals and objectives
Internal Process	Strategic direction and intent Goals and objectives Vision	Formalisation Tradition	Managerial leadership Quality emphasis

Denison renamed his second-order dimensions, but the first-order dimensions are further hosted, in terms of the competing values framework, under different second-order dimensions. For example, Denison's HR dimension (labelled "adaptability") seems to fit the open-systems model more accurately. Similarly, Denison's open-systems model (labelled "involvement") seems to fit the HR model more accurately and his dimensions hosted under the internal process model (labelled "mission") seem to fit better under the rational goals model (labelled "consistency").

The Patterson et al. (2005) and expanded Wiley and Brooks models both seem to lean heavily on measurement of climate dimensions from the HR model. When the expanded model of Wiley and Brooks is fitted into the competing values framework, the argument may be made for a need for stronger representation of the open-systems model in order to provide for a more balanced (more

representative) measurement of organisational climate. The same argument can be made for the internal process and rational goals models, but to a lesser degree. However, the Patterson et al. (2005) model generally provides for a more balanced measure of competing values than the expanded model of Wiley and Brooks.

Although the competing values framework has not been validated extensively in empirical research, it provides a useful tool to ensure that climate models account sufficiently for the polarities between external versus internal focus and flexibility versus stability. It is also a useful tool for identifying over-representation of dimensions around certain models and/or under-representation of dimensions around certain other models. In this research, the competing values framework was used to ensure a proper balanced measurement of organisational climate.

The competing values framework also provides a mechanism to cluster climate dimensions into cultural values.

The above comparison emphasises the fact that none of the climate models discussed are perfectly balanced in terms of representing the four different models of the competing values framework. Theoretically, this could lead to climate results not representing diverse underlying values.

From a validity and reliability perspective, however, Denison's model raises serious questions around its factorial validity, specifically in the South African context. The model of Patterson et al. (2005) provided partial evidence of validity, although it did not convince completely. The expanded model of Wiley and Brooks seems promising from the validity and reliability reported by Gerber (2005) in his test manual. Because validity is contextual, the expanded model of Wiley and Brooks has an additional advantage of being validated in the population intended for the empirical phase. At the same time it should be recognised that the validation of the expansion made by Gerber (2005) is not

published research and more evidence was required before the model could be deployed in the empirical part of this research. Lastly, its link to organisational performance (as demonstrated by Wiley and Brooks, 2000) aligns to the business need of the organisation in which this research was conducted.

Consequently, this expanded model of Wiley and Brooks was further expanded to represent the competing values better and was validated in the same population in which the empirical part of this research was conducted. This provided the researcher with a comprehensive generic (molar) climate model, aimed at delivering efficiency and performance, but aligned to climate in that clusters of climate dimensions provided insight into the basic four cultural models of the competing values theory.

This questionnaire was labelled the *High Performance Climate Questionnaire (HPCQ).*

3.9 ORGANISATIONAL CLIMATE AND ORGANISATIONAL OUTCOMES

The popularity and usefulness of the construct organisational climate stems largely from the established link between organisational climate and organisational outcomes.

The study of the link between organisational climate and organisational performance is commonly referred to as climate-performance (C-P) research or linkage research (Wilderom, Glunk, & Maslowski, 2000; Wiley & Brooks, 2000).

Although the intention is by no means to provide an exhaustive list of climate performance research findings, the following serve as examples of linkages between climate and organisational performance/outcomes:

Table 3.8: Summary of major links between climate and organisational outcomes

Organisational outcome	Summary of findings	Researcher(s)
Affective commitment	Affective commitment was found to strongly correlate (r = 0.75) with human resources development climate in a sample in Nigerian commercial banks.	Benjamin & David (2012)
Organisational citizenship behaviour	Ethical climate of CEOs was positively correlated to organisational citizenship behaviour in a South Korean sample.	Shin (2012)
Company productivity	Productivity was related to organisational climate dimensions. Company productivity was more strongly correlated with climate dimensions that had stronger satisfaction loadings.	Patterson, Warr, & West (2004)
Customer attitudes	A relationship between service climate and customer attitudes was found. This relationship was moderated by the proximity and relevancy of the service climate to the customer, as well as the frequency of contact between employee and customer.	Dietz, Pugh, & Wiley (2004)
Job satisfaction	Organisational climate, correlated at 0.685 with the satisfaction of a group of Pakistani executives in public, private and foreign banks.	Bhutto, Laghari, & Butt (2012)
Work motivation	Organisational climate was	Gerber (2003)

	found to influence work motivation (as measured from the perspective of the expectancy theory as formulated by Lawler).	
Work engagement	Work engagement predicted climate, which predicted employee performance and customer loyalty.	Salanova, Agut, & Peiró (2005)

With the exception of the inclusion of employee engagement, the research summarised above is consistent with earlier climate-performance research published by Wiley and Brooks (2000).

From the above summary it appears that organisational climate plays a crucial role in the attainment of organisational outcomes. During organisational change, according to Wiley and Brooks (2000), climate dimensions and organisational outputs change in a specific sequence. Firstly, work motivation, work satisfaction and organisational commitment may be obtained through the climate generated by management and leadership practices in the organisation. Then these positive changes (at employee level) facilitate better customer perceptions through the provision of better service and a service quality orientation. Better customer perceptions, in turn, facilitate the achievement of higher levels of organisational performance, effectiveness and productivity. Organisational performance determines certain leadership actions that complete the cycle and generate a climate that influences behaviour at employee level (Wiley & Brooks, 2000).

From the above it is evident that organisational climate is a crucial construct for organisations because it impacts their outcomes directly. Regular climate surveys are utilised in the organisation in which this research was conducted. This enables management to detect early warning signs before performance is impacted negatively.

3.10 MEASUREMENT AND CONTROVERSIES

The aggregation of individual climate scores (psychological climate) to obtain a collective organisational climate score is undoubtedly one of the major controversies in organisational climate research.

In order to validly aggregate individual ratings of climate into an organisational variable, it is necessary to indicate that the individual scores are sufficiently homogeneous. This homogeneity indicates a shared, organisational characteristic, namely organisational climate (Denison et al., 2006).

Payne (2000) argues that the mean organisational climate score ignores variance around the mean. According to him, this variance can sometimes be considerable and he calls for the use of a measure to justify the use of the mean as an indicator of organisational climate.

Different statistical methods of assessing agreement between respondents are available. In organisational climate research, some of the popular methods include cluster analysis, interclass correlations, the within-group agreement index (r_{wg}), eta squared and within-and-between analysis (WABA).

Of the methods above the within-group agreement index seems to have emerged as the most popular. A common rule-of-thumb is that a within-group agreement index of at least 0.70 is required to indicate sufficient agreement amongst organisational members to calculate a collective climate score (Payne, 2000).

There is, however, still some debate around the use of the index and some critics argue that r_{wg} is in fact merely a reliability coefficient (Finn, 1970). Others (Schmidt & Hunter, 1989) contend that there is no real need for its existence because interrater agreement can be assessed by the standard deviation or the standard error of the mean ratings across judges.

James et al. (2008) recommend the use of r_{wg} as an indicator of interrater agreement but not interrater reliability. They also conclude that the average deviation index (AD) should be utilised as a measure of interrater agreement between two judges. There are still a number of unresolved issues pertaining to r_{wg}.

Homogeneity of individual scores is receiving increased attention in the research literature to indicate the validity of organisational climate measures. In the light of recent psychometric developments, it appears that r_{wg}, as proposed by James, Demaree, and Wolf (in Payne, 2000) and James et al. (2008) could meet this requirement. Although further development is still required, a cut-off value of 0.70 is generally accepted (Payne, 2000) and should be employed.

3.11 PROPOSED MODEL OF ORGANISATIONAL CLIMATE

Based on the theory presented in this chapter, a theoretical model, namely the integrated climate and culture model, is proposed. A diagrammatical representation of the model is provided in figure 3.6 below.

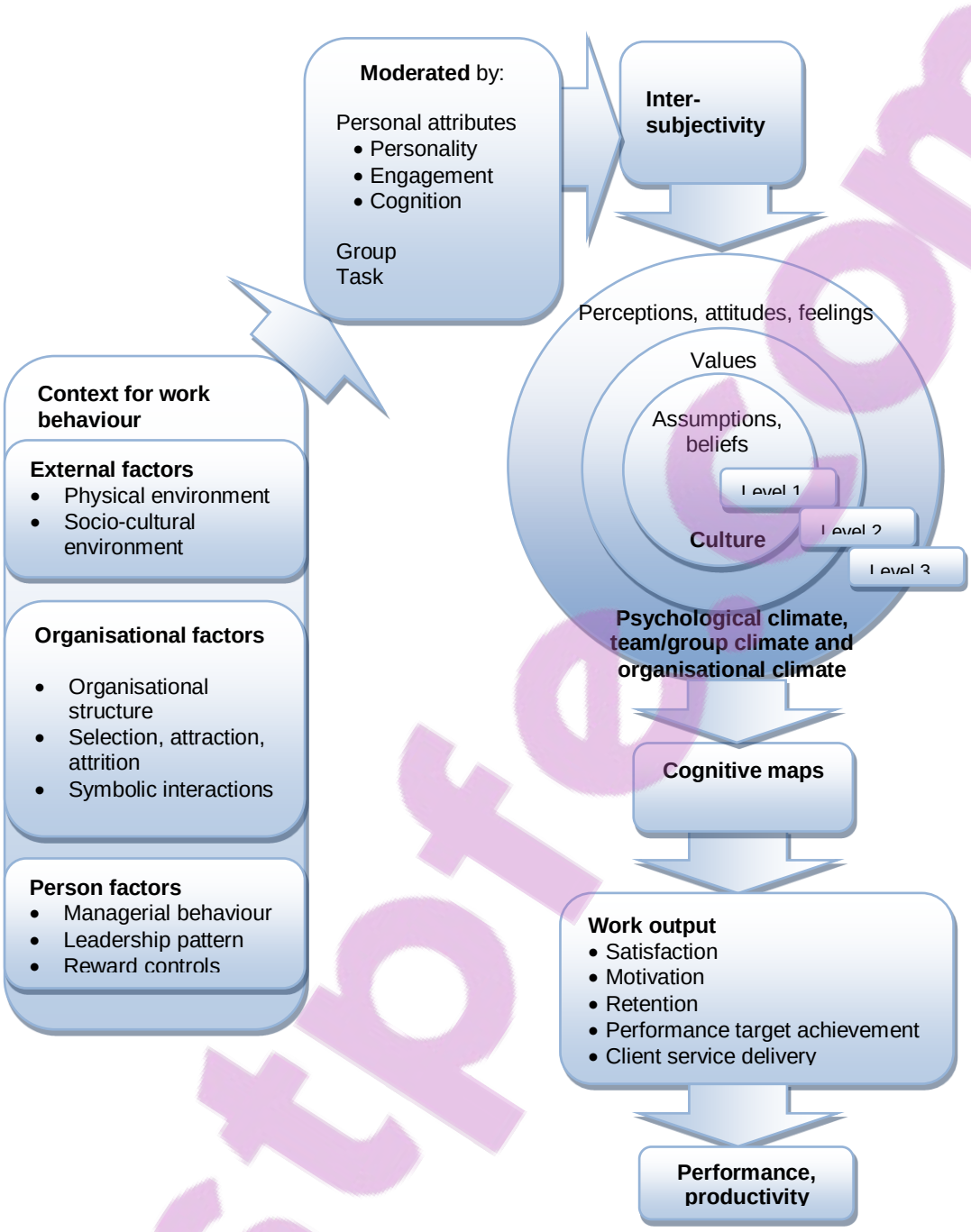


Figure 3.6: The integrated climate and culture model

Climate is a more superficial perspective of the same phenomenon than culture (Schein, 2009). The purpose of the research at hand is determined by which of the two constructs is the more appropriate. For example, if accurate quantifiable

data is required on the shared perceptions, feelings and attitudes of employees about/towards significant aspects of their work at a specific point in time, then the construct climate needs to be considered. However, if the focus is to gain an understanding of the shared basic assumptions, ideologies and values of employees, then the focus of study should be culture. However, one should bear in mind that organisational climate develops, at a more peripheral level, than organisational culture and that the two constructs should be aligned under normal conditions.

Climate (as a surface-level manifestation of organisational culture) originates from external factors, organisational factors (organisational structures, selection, attraction and attrition, management and symbolic interactions) and person factors (Field & Abelson, 1982). These variables provide the context in which future work behaviour occurs.

Perceptions, attitudes and feelings form or change, relatively quickly, and should there be enough consensuses, climate will be experienced by the group (and can then be measured validly). In contrast, similar values take much longer to become entrenched or to change, and represent (in the strict sense) culture. Fundamental beliefs, ideologies and basic assumptions take much longer to share and are even more difficult to access from a measurement perspective. They are closer to the core of culture.

Three main categories of influences on climate are identified. They are external factors, organisational factors and person factors. Through a process of intersubjectivity, quasi-facts (about external, organisational and person factors) are integrated in a cognitive representation in the form of a dimensional structure of psychological climate, group climate or organisational climate (Field & Abelson, 1982). Intersubjectivity is a subjective process and employees may not even be aware of all the objective variables, because they are moderated by personality attributes and cognitive structures (Moran & Volkwein, 1992), engagement

(Salanova et al., 2005), the work group and task (Field & Abelson, 1982). These moderators influence how perceptions, attitudes and feelings are formed, but also how strongly they are shared in the group.

The integrated climate and culture model (figure 3.6) provides a framework for interpretation of organisational climate and culture. This model allows climate to be analysed validly at three different levels, namely at individual level (psychological climate), group level (group climate) or organisational level (organisational climate). In addition, the construct of culture allows analysis at another level, namely national level (national culture).

The competing values framework provides a method whereby organisational culture can be accessed. The measurement of surface level manifestations of culture, for example, climate (through the measurement of perceptions) makes culture more accessible.

Because surface level dimensions (climate) can be grouped or clustered into second-order dimensions which measure four fundamental business models, informed by competing values, the same model also provides for the measurement of organisational culture. Quick organisational changes can be identified at climate level and slowly influence the second-order dimension (values or culture) to provide the organisation with long-term direction.

The climate generated leads to higher levels of work output, and more specifically, greater affective job satisfaction (Bhutto et al., 2012), work motivation (Gerber, 2003), (retention through) commitment (Benjamin & David, 2012) and (performance target achievement and client service delivery through) organisational citizenship behaviour (Shin 2012). These conditions seem fertile for organisational performance.

Wiley and Brooks (2000) identified a sequence in which climate and culture trigger organisational outcomes. Management and leadership behaviour generates a climate that influences the work motivation, satisfaction and commitment of employees. This affects employees' service perceptions which in turn influence service orientation and quality orientation levels.

Higher service orientation and quality orientation levels result in higher levels of organisational performance, effectiveness and productivity. Higher levels of performance result in management behaviour which is perceived as pleasant, and generates climates that are motivating, satisfying and likely to elicit commitment. The circle then closes.

3.12 THEORETICAL INTEGRATION MODEL OF EMOTIONAL INTELLIGENCE AND ORGANISATIONAL CLIMATE

In chapter 2 and the latter part of this chapter, the constructs of emotional intelligence and organisational climate were conceptualised and theoretical models were developed through the integration of current research. The focus here shifts to the integration of the theoretical models of emotional intelligence and organisational climate into an integrated theoretical model. This will conclude the literature research, provide a model that will be tested statistically during the empirical chapter and lay a platform for the interpretation of the interaction of emotional intelligence and organisational climate during the empirical research.

Vacharkulksemsuk, Sekerka, and Fredrickson (2011) note that organisations are much more focused today on human elements in organisational life than what they were before. This includes recognition that emotional elements influence performance in organisations. Vacharkulksemuk et al. (2011) advocate the use of positive emotions in relations to create a positive emotional climate. Positive emotional climates, according to them, lead to enhanced organisational relations,

better organisational identity and organisational growth and performance. These in turn promote community growth and development.

According to Cherniss (2001), emotional intelligence emerges primarily from interpersonal relations, but also influences relations between people. Cherniss (2001) models organisational effectiveness and emotional intelligence and indicates that leadership, HR functions and organisational climate and culture influence each other, but each also influences emotional intelligence at individual level as well as at group level in the organisation. This influence on emotional intelligence happens through its impact on relations.

From the above discussion it seems logical that the constructs of emotional intelligence and organisational climate are linked. The next section provides existing evidence of such a link.

3.13 EVIDENCE FOR AN INTEGRATED MODEL OF EMOTIONAL INTELLIGENCE AND ORGANISATIONAL CLIMATE

Research has recently been conducted on the relationship between emotional intelligence and organisational climate, but little is still known about this relationship. The available research is summarised below.

Matsumoto, Yoo, and Fontaine (2009) indicate that national cultures differ from each other to the degree that emotional differentiation is required. In this regard, some cultures display less differentiation in emotions across situations where other cultures require the display of different emotions in different situations. Although this study was not directly linked to emotional intelligence, it does link national culture to emotions. This study aligns with the discussion of the etiology of emotional intelligence (integration in section 2.5) where it was concluded that emotional intelligence may also be transferred through a process of (direct and

indirect) socialisation. This socialisation occurs in a cultural context that gave rise to the cultural differences noted in the study of Matsumoto et al. (2009).

The research of Kotzé (2008) is relevant to the integration of emotional intelligence and organisational climate. Although he could not establish a relationship between emotional intelligence and organisational climate as part of his main research, he did succeed in finding support for the fact that emotional intelligence predicts organisational climate when he isolated the two constructs.

His sample consisted of eight South African organisations. A total of 190 usable responses were returned.

Organisational climate was measured using the Team Climate Inventory of Anderson and West. From the 61 original items, 38 were retained to represent five factors, namely vision ($\alpha = 0.94$), participative safety ($\alpha = 0.89$), support for innovation ($\alpha = 0.92$), task orientation ($\alpha = 0.92$) and frequency of interaction ($\alpha = 0.84$).

He measured trait emotional intelligence with the Schutte Self-report Inventory (SSRI) and confirmed the model (RMSEA = 0.0640, NNFI = 0.959, CFI = 0.962, IFI = 0.962) in a South African sample after five of the original 33 items were discarded. Only the RMSEA did not reach the 0.05 cut-off value. The overall Cronbach alpha was satisfactory at 0.88.

Liu, Wong, and Fu (2012) studied team leaders' emotional intelligence, personality, empowering behaviour and team climate in a Hong Kong sample of 279 respondents (93 team leaders and two direct reports per team). For the assessment of emotional intelligence the 16-item (trait emotional intelligence) scale of Wong and Law was used. The internal consistency reliability ($\alpha = 0.84$) of the scale indicated that it delivered a reliable measurement.

Liu et al. (2012) used an eight-item team climate measure developed by Schneider. It reportedly measures four dimensions, namely team organisational citizenship behaviour, team cohesiveness, team norm and team potency. The internal consistency reliability of the scale was strong (α = 0.91), indicating that reliable measures were obtained.

Relevant to this study, Lui et al. (2012) reported a weak (but statistically significant) correlation ($r = 0.30$, $p < 0.01$) between team leaders' emotional intelligence and their team climates. In the larger regression model, emotional intelligence and agreeableness had a significant positive relationship with team climate ($\beta = 0.27$, $p < 0.05$, and $\beta = 0.21$, $p < 0.10$, respectively).

The study of Liu et al. (2012) is particularly relevant to this research because it measures trait emotional intelligence (as opposed to ability emotional intelligence and proposed in the integration of section 2.6) and climate (as opposed to culture and proposed in the integration of section 3.5.2).

The above discussion provides enough evidence to suggest that (trait) emotional intelligence influences organisational climate. In the next section, the theoretical integration model of emotional intelligence and organisational climate will be discussed.

3.14 INTEGRATION MODEL: EMOTIONAL INTELLIGENCE AS A DETERMINANT OF ORGANISATIONAL CLIMATE

The theoretical integration model of emotional intelligence as determinant of organisational climate will be discussed in this section.

Individuals are born with biological predispositions to the development of emotional intelligence capacity. These predispositions include intellectual capacity, personality preferences, gender and so forth. Personality and general

intelligence are known to correlate at least weakly with emotional intelligence and have a genetic component. Gender is similarly known to correlate with emotional intelligence to the extent that females exhibit higher emotional intelligence than males (see section 2.5.1).

While an innate emotional intelligence is acknowledged, it is also important to take cognizance of social influences on the development of emotional intelligence. Through direct observation, the behaviour modelled by significant models, or through more structured means such as training, coaching and guidance, or through reinforcement of expressive behaviours, emotional intelligence is learnt (see section 2.5.2).

The emotional intelligence that is viewed in this model is labelled as trait emotional intelligence and is defined as the accurate detection of emotions in oneself and others, the effective use of emotions to facilitate thought, the understanding of emotions and the effective management of them (see integration in section 2.3).

During formal or informal interactions/socialisations with leaders and other organisational members, individuals use their emotional abilities, sometimes during formal interactions and at other times informally. During these encounters, individuals obtain (either formally or informally) feedback on their emotional behaviour from others, and within the boundaries of their capacity, they develop their emotional intelligence.

During these encounters (with leaders and other organisational members), and especially in an organisation or team with an advanced emotional intelligence, individuals are more sensitive (understanding emotions, perceiving emotions: self & others) to each other's emotions and able to more accurately communicate (in the broadest sense of the word) with each other (the use of emotions to facilitate thought and managing emotions are relevant). This facilitates the setting and

achievement of higher goals and targets and the achievement of these with the aid of a strong internal motivation.

Sometimes the effort of acting in an emotionally intelligence manner puts strain on the individual, so called emotional labour, which may be counter-productive and influence work performance negatively.

Emotional intelligence (as crafted in the process indicated above), together with personality attributes, cognitive structures, engagement, the work group, as well as the task, moderates how employees view their external factors, organisational factors and person factors. Through a process of intersubjectivity, quasi-facts about the context in which behaviour occurs (or the external environment, the organisational environment and person factors) are integrated into a cognitive representation. These moderators influence how perceptions, attitudes and feelings are formed, but also how strongly they are shared in the group.

Organisational culture (involving fundamental ideologies, basic assumptions and beliefs) is fairly inaccessible in terms of measurement. At surface level, values are measurable, although they do not fully represent the richness of organisational culture.

Organisational climate develops in alignment with its culture, and the construct climate (as shared perceptions) is much more accessible in terms of measurement, than organisational culture. The climate generated is practically made visible through climate measurements and quantified in a dimensional structure of psychological climate, group climate or organisational climate.

Cultural indicators, like organisational structures, the influences of organisational founders, the processes of selection, attraction and attrition, management and leadership, as well as the socialisation process, are not restricted to the construct of organisational culture. Organisational climate, as a surface level manifestation

of culture, allows accurate measurements and is, at least to some extent, indicative of the characteristics at the deeper level (culture). At climate level, work context can be described in terms of its external factors (the physical and socio-cultural environment), internal factors (such as the organisational structure, the selection, attraction, and attrition process, and symbolic interactions) and person factors (the individual's managerial behaviour, leadership patterns and reward controls).

Organisational climate as shared perceptions is therefore dependent on the interpersonal skills of employees (together with the other moderators) that communicate and share these perceptions.

Perceptions, attitudes and feelings are generated through the process indicated above and a cognitive representation (cognitive map) is formed to guide future behaviour in terms of affective commitment, job satisfaction, work motivation and organisational citizenship behaviour. This, in turn, together with emotional labour, influences work performance. More specifically this process takes place through work outputs such as

- job satisfaction
- work motivation
- retention and citizenship behaviour and
- performance target achievement and client service delivery (through affective commitment)

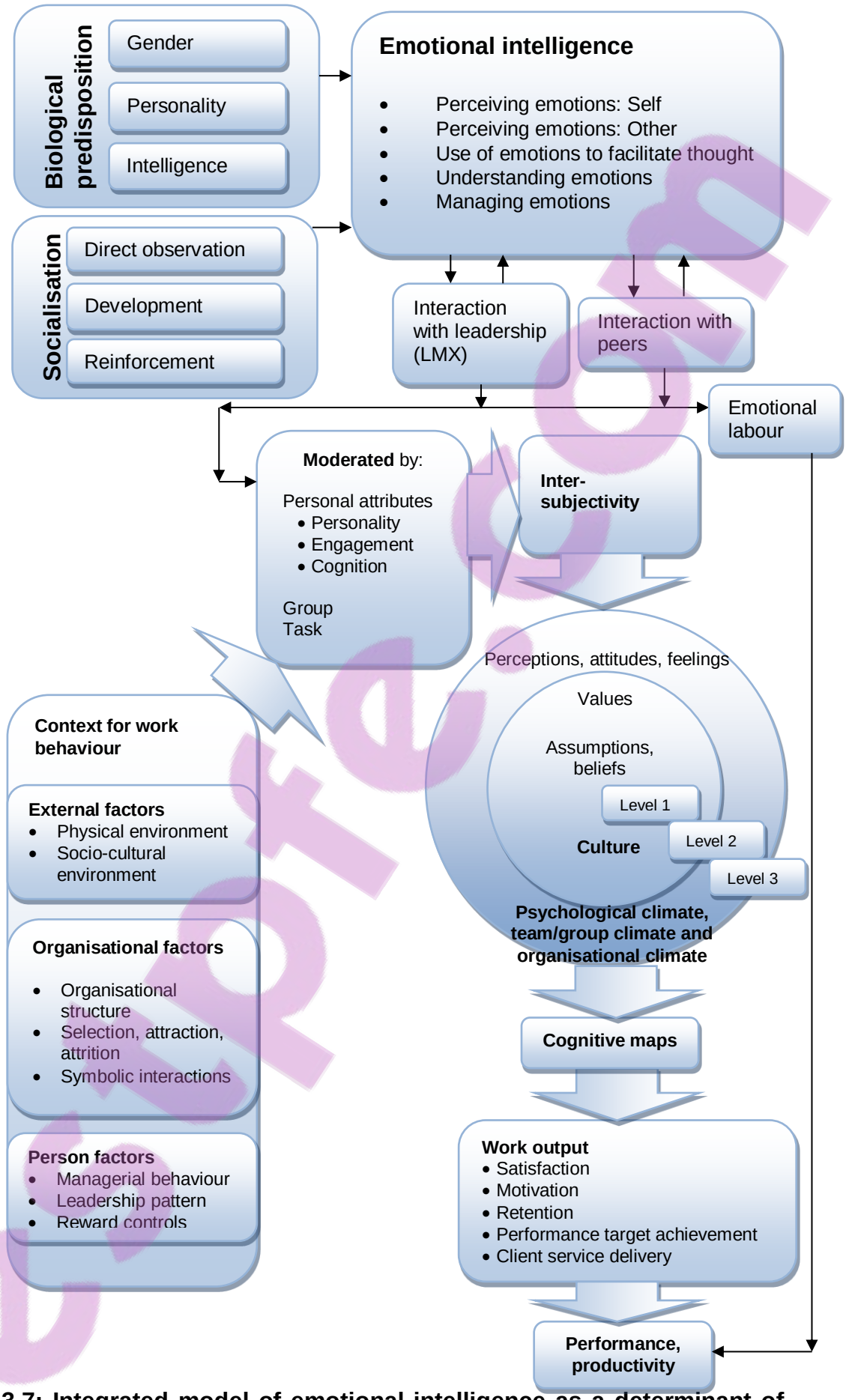


Figure 3.7: Integrated model of emotional intelligence as a determinant of organisational climate

3.15 CHAPTER SUMMARY

For the purpose of this research, organisational climate was defined as *a surface-level manifestation of organisational culture and is accessible through the perceptions, attitudes and feelings that organisation members share about significant aspects of the organisation.*

Organisational climate has its origin in the work context and includes external, organisational (organisational structures, selection, attraction, attrition and symbolic interactions) and person factors. This, in turn, is influenced by shared basic assumptions, ideologies and values, as characterised by organisational culture.

Culture is communicated and learnt by new employees through storytelling, rituals, symbols and language. At a more superficial level, climate is then transferred through everyday communication and interaction with other individuals.

According to Schein (1985), culture exists at three levels, namely artefacts and creations, values and basic assumptions and beliefs. The first level, namely artefacts and creations, overlaps with the organisational climate and the researcher followed the recommendation made by Payne (2000) to integrate the two constructs.

A useful tool for integrating constructs of culture and climate is the competing values framework, because it allows for the measurement of perceptions in its first-order dimensions, to reflect values in its second-order dimensions. The researcher reviewed two models based on the competing values framework and fitted a model that was developed by Wiley and Brooks (2000) and then expanded it for the population intended for the empirical part of this research into

the competing values framework. The researcher then compared the three models.

Three models were reviewed, namely the model of Denison (1996; 2001), Patterson et al. (2005) and the expanded model of Wiley and Brooks (2000).

All three models had strengths and weaknesses, but it was concluded that the expanded model of Wiley and Brooks (2000) would be further developed to better reflect the competing values theory. This would allow the development of a more balanced measure of organisational climate in order to lay a solid platform for the main empirical research that followed.

Organisational climate was seen to influence a number of important organisational outcomes. Wiley and Brooks (2000) noted a sequence in which climate influences these outcomes.

The above was integrated into a theoretical model of organisational climate. This model would be used to conceptualise organisational climate and to explain the empirical results.

Lastly, the emotional intelligence and organisational climate conceptual models were integrated to provide a theoretical model for emotional intelligence as a determinant of organisational climate.

This chapter concludes step 2 (Literature review: Organisational climate and theoretical integration of emotional intelligence and organisational climate) of phase 1, which is the literature review presented in section 1.8.

The objective of this chapter was attained in that organisational climate was conceptualised and a theoretical model was developed through the integration of current research. This model will also inform the development of an

organisational climate measurement instrument that will be used in phase 2 of this research. In addition, a theoretical integration between emotional intelligence and organisational climate was conceptualised into a theoretical model that views emotional intelligence as a determinant of organisational climate.

This model was used to explain the results from the empirical research and was tested in phase 2, the empirical part of this research (see section 1.8).

This chapter concludes the first phase of this research, namely the literature review. The next chapter focuses on the second phase of this research, namely the empirical research.

CHAPTER 4: THE EMPIRICAL RESEARCH

Chapters 2 and 3 covered phase 1, the literature research, as part of the research methodology presented in section 1.8. This chapter will present step 1 (population and sample), step 2 (determining the measurement battery), step 3 (data collection), step 4 (data analysis), step 5 (hypothesis formulation) of phase 2, the empirical research.

4.1 INTRODUCTION

In this chapter the population and sample will first be described and thereafter attention focused on the biographical and demographical variables that were used in this research.

Thereafter the measurement instruments of emotional intelligence (the GEIS), organisational climate (the HPCQ) and work output (the work output questionnaire) will be discussed in terms of their characteristics, validity and reliability.

A description of the data collection methodology and statistical procedures used during the data analysis will then be presented. Lastly, the hypothesis will be formulated for the next step in this research, namely step 6 (results), which is presented in chapter 5.

4.2 POPULATION AND SAMPLE

The empirical research was conducted in an organisation in the financial services sector. Its head office is based in Pretoria and it has representation in all the geographical areas of South Africa.

The majority of the employees do clerical work of a financial nature, and only a small number of employees are exposed to physical manual labour. Other areas of work also include support functions like human resources, finance and procurement, facilities management, project management, security and information, technology and communication.

At the time of this research the organisation employed 15 557 employees. Employees who participated in this research project numbered 1 612, of which 1 268 returned usable responses to the Gerber Emotional Intelligence Scale (GEIS v1.3) and 1 544 returned usable responses to the High Performance Climate Questionnaire (HPCQ v1.3) and the Work Output Questionnaire (as they were administered together). The full sample (N = 1 612) is described in terms of the biographical and demographical profile in section 5.2. The validity and reliability of the GEIS v1.3 is discussed in section 5.5.1 with the full sample of 1 268. The validity and reliability of the Work Output Questionnaire and HPCQ v1.3 questionnaire is discussed in sections 5.3.1 and 5.7.1, respectively, utilising the full sample of 1 544. However, the confirmatory factor analysis and structural equation modelling (SEM) in this research is presented with a data set of 1 268 respondents, because although all three questionnaires received responses, it was necessary to avoid conducting the statistical analysis with missing values in the data set. The confirmatory factor analysis builds towards more advanced structural equation models and will therefore also be presented with this data set to ensure consistency.

4.3 BIOGRAPHICAL AND DEMOGRAPHICAL VARIABLES

In order to indicate the representativity of the sample, biographical and demographical variables were considered. These variables are discussed below.

Race

Race was classified under the following categories: *unknown, white, Indian, coloured and African.*

Gender

Provision was made for *unknown, male and female.*

Position level (Hay grade)

The following grades were identified: *unknown, 8A, 7, 6, 5B, 5A, 4B, 4A, 3B, 3A, 2, 1 and 0.*

Age

Provision was made for the following six classes: *unknown*, *46 and older, 41 – 45, 36 – 40, 31 – 35, 26 – 30 and 25 and younger*.

Tenure

Provision was made for the following six classes: *unknown, 21+ years, 16 – 20 years, 11 – 15 years, 6 – 10 years and 0 – 5 years.*

Geographical region

The following geographical classes were identified: *unknown, Western Cape, Northern Cape, North West, Mpumalanga, Limpopo, KwaZulu-Natal, Head Office, Gauteng South, Gauteng North, Gauteng Central, Free State and Eastern Cape.*

4.4 MEASUREMENT INSTRUMENT FOR EMOTIONAL INTELLIGENCE: GERBER'S EMOTIONAL INTELLIGENCE SCALE (GEIS)

Integration of the current literature on emotional intelligence in chapter 2 led to the proposal of a model of emotional intelligence. This measurement model, the GEIS, followed recommendations from the literature research and was developed and validated as documented in annexures 2 and 3. Because GEIS was developed from an integration of current research the researcher expects to minimise error variance in the empirical research on emotional intelligence in this thesis.

4.4.1 Description and purpose

The GEIS is a self-rating measurement instrument of trait emotional intelligence. The version utilised in the main empirical research was the third version and was labelled "GEIS v1.3".

The instrument is administered electronically to individuals and the scoring is done on a five point Likert scale, ranging between strongly disagree to strongly agree.

The first version of the scale (GEIS) was developed to correlate negatively with alexithymia (as measured using the TAS-20), as well as to only moderately correlate with personality (for this purpose a five-factor personality questionnaire was developed). The relevance of alexithymia to emotional intelligence was discussed in section 2.3 and personality in section 2.9.2. The validation process is described under validation study 1A in annexure 2. Only nine items were ultimately retained.

The second version of the scale (GEIS-R 1.2) expanded on the previous measurement model to measure five distinct dimensions over 26 items. The validation report recommended that, although the instrument could deliver a valid and reliable measurement of emotional intelligence, some dimensions should be increased for the main research. The validation process is described under the validation study 1B in annexure 2.

A biographical and demographical questionnaire is included in the GEIS. It is utilised for biographical and demographical analysis of emotional intelligence data.

4.4.2 Dimensions and interpretation

GEIS 1.2 was developed to operationalise the definition formulated in the integration of section 2.8. As proposed in table 2.5, the model was built on the following dimensions:

Perceiving emotions: Self

This dimension pertains to the accurate awareness and perception of one's own emotions.

Perceiving emotions: Other

This dimension pertains to the accurate awareness and perception of other people's emotions.

Use of emotions to facilitate thought

This dimension pertains to the ability to purposefully stimulate and enhance thought processes by the skilful use of emotions.

Understanding emotions

This dimension pertains to the level of knowledge that one has about emotions and is a reflection of the level of understanding that one has of the complexities of human emotions.

Managing emotions

This dimension pertains to the ability to generate and manipulate one's own emotions.

The dimensions of the biographical and demographical questionnaire is race (unknown, White, Indian, Coloured, and African), gender (unknown, male, and female), position level (unknown, Hay grade 8A, 7, 6, 5B, 5A, 4B, 4A, 3B, 3A, 2, 1, and 0), age (unknown, 46 and older, 41 – 45, 36 – 40, 31 – 35, 26 – 30, and 25 and younger), tenure (unknown, 21+ years, 16 – 20 years, 11 – 15 years, 6 – 10 years, and 0 – 5 years) and geographical region (Western Cape, Northern Cape, North West, Mpumalanga, Limpopo, KwaZulu-Natal, Head Office (Pretoria), Gauteng South, Gauteng North, Gauteng Central, Free State, and Eastern Cape.

4.4.3 Validity and reliability

The GEIS v1.2 is a new measurement instrument, but it is built on the integration of current research trends in the area of measurement of emotional intelligence as presented in chapter 2.

The instrument was developed by utilising exploratory factor analysis and the underlying factorial structure of the questionnaire is therefore supported. The factor analysis (indicated in annexure 3) revealed four distinct factors with items that load on to the dimensions listed in section 4.4.2 above.

Table 4.1 summarises the internal consistency reliability of the scale per dimension.

Table 4.1: Reliability of the GEIS v1.2

Scale	Cronbach's alpha	Number of items
Perceiving emotions: Self	0.730	4
Perceiving emotions: Other	0.744	6
Use of emotions to facilitate thought	0.783	4
Understanding emotions	0.826	7
Managing emotions	0.845	5
Overall	0.868	26

From table 4.1 above it is clear that the minimum requirement for assessment purposes has been met. Items were added to the questionnaire when the main study was conducted to help strengthen the dimensions of "*perceiving emotions: self*", and "*use of emotions to facilitate thought*".

4.5 MEASUREMENT INSTRUMENT FOR ORGANISATIONAL CLIMATE AND WORK OUTPUT: HIGH PERFORMANCE CLIMATE QUESTIONNAIRE (HPCQ) AND WORK OUTPUT QUESTIONNAIRE

The integration of current literature on organisational climate in chapter 3 led to the proposal of a model of organisational climate. This measurement model, the HPCQ (version 1.1) was developed and validated earlier (Gerber, 2005) (see annexure 1 for greater detail). It was subsequently updated (HPCQ v1.2) with the recommendations taken from annexure 4, section 2, in order to better represent the higher-order structure of the competing values framework as a possible mechanism for providing a more balanced view of organisational climate. Different tools were compared in paragraph 3.7 and the HPCQ v1.2 was indicated as the first choice for the main research in this thesis. The development and validation process is documented in annexure 4. In order to explore the interaction between the constructs of emotional intelligence and organisational

climate and work output, a work output questionnaire will be developed during the empirical phase of the research.

4.5.1 Description and purpose

The HPCQ is a climate measurement instrument. At individual level, psychological climate is measured, but when the scores of team members are aggregated, team climates are measured, and the overall aggregation of team climate provides an organisational climate measurement.

The instrument was designed as a diagnostic tool to inform developmental areas in order to create high performance work units. It is available on an electronic platform to enable online administration and scoring is done on a five point Likert scale, ranging between strongly disagree to strongly agree.

The HPCQ version 1.2 was validated and the process documented in pilot study 2 in annexure 4.

A biographical and demographical questionnaire is included in the HPCQ. It is utilised for biographical and demographical analysis of organisational climate data.

4.5.2 Dimensions and interpretation

Fifteen distinct climate dimensions are measured using the HPCQ v1.2. They are discussed below.

Empowerment

Employees have the appropriate knowledge and information available to perform their jobs adequately. They also have the authority, initiative and ability to manage their own work. This creates a sense of ownership and

responsibility towards the organisation.

Employee training

Training is done effectively and helps employees to become more productive.

Overall satisfaction

Employees are generally satisfied with their work, team, management and salary and so forth.

Change

Changes are viewed to be sensible, to have a positive impact on the work environment and employees are excited about them.

Teamwork

Teamwork is valued and encouraged by management and employees. Team members cooperate and assist each other to become more productive.

Retention

Employees value their relationship with the organisation and do not intend resigning or changing jobs.

Individual importance

Individuality of the organisation's members is recognised. Individuals are utilised in areas that are important to them and everyone feels that their individual contribution towards the organisation's outputs are significant.

Client service orientation

The organisation values, understands, emhasises and reacts to its customers and anticipates their future needs. It reflects the degree to

which the organisation is driven by a concern to satisfy its customers.

Creativity

The work environment encourages and supports creativity and new ways of doing things are frequently implemented.

Goals and objectives

A clear set of goals and objectives can be linked to the mission, vision, and strategy, and provides everyone with clear direction in their work.

Mission, vision and values

The organisation has a shared view of a desired future state. It embodies core values and captures the hearts and minds of the organisation's people, while providing guidance and direction. Members of the organisation are aware of its values and share them personally. These values create a sense of identity for the organisation.

Diversity

Employees buy into the organisation’s diversity strategy (in terms of age, race, gender and disability) and feel positive about these changes.

Managerial leadership

Managerial leadership is viewed to be effective at all levels in the organisation.

Communication

Communication of information is effective between various employees and between and within different business units.

Quality emphasis

Employees are committed to and emphasise quality work and continuous

improvement to the quality of work.

The work output questionnaire will be a short, single dimensional measurement instrument and will include aspects such as work satisfaction, work motivation, retention, performance achievement, and client service delivery.

The dimensions of the biographical and demographical questionnaire is race (unknown, White, Indian, Coloured, and African), gender (unknown, male, and female), position level (unknown, Hay grade 8A, 7, 6, 5B, 5A, 4B, 4A, 3B, 3A, 2, 1, and 0), age (unknown, 46 and older, 41 – 45, 36 – 40, 31 – 35, 26 – 30, and 25 and younger), tenure (unknown, 21+ years, 16 – 20 years, 11 – 15 years, 6 – 10 years, and 0 – 5 years) and geographical region (Western Cape, Northern Cape, North West, Mpumalanga, Limpopo, KwaZulu-Natal, Head Office (Pretoria), Gauteng South, Gauteng North, Gauteng Central, Free State, and Eastern Cape.

4.5.3 Validity and reliability

The HPCQ v1.2 has evolved over a number of years. With each iteration, more dimensions have been added to provide a more comprehensive high performance climate measurement.

The instrument was developed by utilising exploratory factor analysis and the underlying factorial structure of the questionnaire is therefore supported.

Table 4.2 summarises the internal consistency reliability of the scale per dimension.

Table 4.2: Reliability of the HPCQ v1.2

Scale	Cronbach's alpha	Number of items
Empowerment	0.872	6
Training	0.862	6
Satisfaction	0.802	4
Change	0.806	4
Teamwork	0.849	5
Retention	0.805	5
Individual	0.833	5
Client service orientation	0.870	5
Creativity	0.779	5
Goals and objectives	0.873	6
Vision, mission and values	0.932	11
Diversity	0.707	3
Management	0.873	5
Communication	0.886	6
Quality emphasis	0.873	6
Total scale (HPCQv1.2)	0.975	82

From the validation study as documented in annexure 4, the HPCQ v1.2 appears to be a valid and reliable instrument for the measurement of high performance climates.

Only the dimensions of creativity (0.779) and diversity (0.707) had Cronbach alpha values smaller than 0.80 and the overall value of 0.975 indicates an exceptionally high degree of internal consistency reliability for the instrument.

The work output questionnaire will be developed during the empirical phase of this research and there is currently no validity or reliability information available.

4.6 DATA COLLECTION

The data collection for this research was done two steps (refer to phase 2 of the research design in paragraph 1.7). Firstly data was collected for the pilot research, namely the validation of the GEIS and HPCQ. To this end separate validation studies were conducted to validate the GEIS v1.1 (see Annexure 2), GEIS v1.2 (see Annexure 3) and HPCQ v1.2 (see Annexure 4).

During the second step of phase 2 of this research data was collected for the main research, which entailed the validation of the GEIS v1.3, HPCQ v1.3, and the Work Output Questionnaire as well as to test the model that see emotional intelligence as determinant of organisational climate.

The GEIS v1.3 and HPCQ v1.3 were both administered electronically in the participating organisation, large financial services organisation. The HPCQ v1.3, together with the Work Output Questionnaire, was administered as part of a leadership development initiative and the GEIS v1.3 was administered separately as a research project. The administration of these assessments was carefully planned not to run concurrently with any other significant intervention that could contaminate the research findings.

The validity and reliability of the Work Output Questionnaire is discussed in the next chapter.

Participation was voluntary and no incentives were provided for participation.

The HPCQ v1.3 (together with the Work Output Questionnaire) was administered first and ran for a period of three weeks. It was then closed. Employees for whom usable results on the HPCQ v1.3 (and Work Output Questionnaire) were obtained, were targeted with the GEIS v1.3.

4.7 DATA ANALYSES

During the development of the GEIS (see annexures 2 and 3) and HPCQ (see annexure 4), the statistical procedure of exploratory factor analysis was used and item analysis was conducted utilising Cronbach's alpha.

After the data had been collected it was analysed statistically. The sample was first described with descriptive statistics, and thereafter exploratory factor analysis and item analysis were presented on both the measurement instruments (the GEIS v1.3 and HPCQ v1.3) utilising the sample data of the main research.

Then the proposed theoretical model was tested using SEM. Where moderate correlations were obtained, a regression analysis was also conducted to determine the amount of variance explained.

The statistical software packages, SPSS 22 and AMOS 22, were utilised in the statistical analyses of all data in this research.

The statistical procedures applied in this research are discussed below.

4.7.1 Frequency tables

The frequency of occurrence was reported when the sample was described. This description takes the form of histograms to enable the reader to understand if the research findings can be generalised to South Africa or other companies.

4.7.2 Normality and differences between groups

Work output, emotional intelligence, and organisational climate data were subjected to the Kolmogorov–Smirnov test to establish whether the data was normally distributed. Where the data was normally distributed, one-way analysis

of variance (ANOVA) was used to establish if there were significant differences between the biographical and demographical variables. Where the data showed non-parametric characteristics, the Kruskal–Wallis test was used to determine whether there were significant differences between the classes.

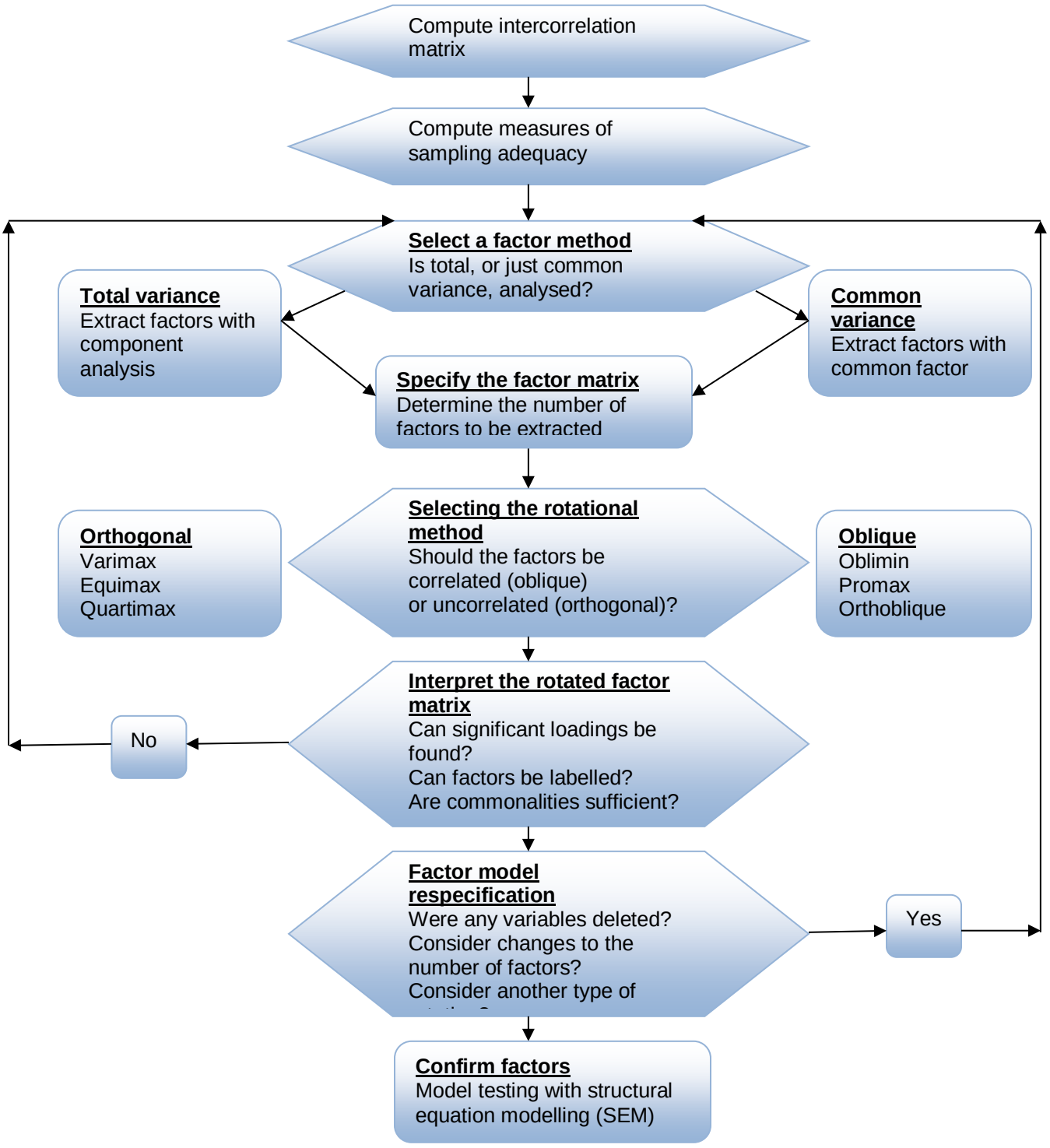
4.7.3 Exploratory factor analysis

According to Kerlinger (1986), the statistical technique of factor analysis is particularly useful for exploring the underlying dimensional structure of a questionnaire. The technique is particularly useful to help to unravel the underlying dimensional structure of a questionnaire. It is then expected that the items that refer to the same dimension will correlate with each other and this principle is used for factor analysis to unravel underlying factors/ dimensions.

Kerlinger (1986, p. 569) describes factor analysis as follows:

“Factor analysis serves as the course of scientific parsimony. It reduces the multiplicity of tests or measures to greater simplicity. It tells us, in effect, what tests belong together – which ones virtually measure the same thing, in other words, and how much they do so. It thus reduces the number of variables with which the scientist must cope. It helps the scientist locate and identify unities or fundamental properties underlying tests and measures.”

Figure 4.1 provides a graphical representation of the major steps that were followed.



Source: Adapted from Hair, Anderson, Tatham, and Black (2010)

Figure 4.1: Factor analysis decision diagram

4.7.4 Sampling adequacy

The Kaiser-Meyer-Olkin (KMO) and Bartlett test were conducted to establish if the data was adequate for factor analysis. The KMO measure of sampling adequacy test was applied if the partial correlation between variables was small enough.

Bartlett's test of sphericity was used to determine if the correlation matrix was an identity matrix. If this was indicated, then factor analysis would not be applicable (Field, 2009).

It is recommended that the KMO value (which ranges between 0 and 1) is greater than 0.50. Large KMO values indicate that the correlation patterns are relatively compact and that factor analysis would extract clearly separable and reliable factors.

It is recommended that the *p* value of the Bartlett test be smaller than 0.05 as this would indicate that the correlation matrix is not an identity matrix.

4.7.5 Principal components analysis

According to Hair et al. (2010), principal components analysis (PCA) is appropriate when the primary concern is prediction or when the minimum number of factors is required to account for the maximum proportion of total variance. By contrast, when the objective is to identify the latent dimensions of a construct of which little is known, an error variance (and one therefore wishes to eliminate this variance) is obtained and then common factor analysis becomes the more appropriate model. Owing to complications in the use of common factor analysis, and the similarity between the two models, component analysis is used more widely. It was utilised in the empirical research that followed.

4.7.6 Eigen values

Eigen values associated with the underlying factors and factor numbers, together with Catell's scree test, were used to determine the possible number of factors to extract (Glass & Stanley, 1970).

Eigen values provide an indication of how much (common and unique) variance of the data is accounted for by a factor. The larger the eigen value, relative to the eigen values of other factors, the more variance will be explained by the factor (Hair et al., 2010).

According to Hair et al. (2010), the latent root criterion is the most frequently used. This methodology only considers factors with latent roots (eigen values) greater than 1. This methodology seems to be too conservative if fewer than 20 factors are extracted, and too liberal if more than 50 are extracted (Hair et al., 2010).

Catell's scree test involves studying the slope when the eigen values (latent roots) are plotted against the number of factors (Glass & Stanley, 1970). The shape of the resulting curve is then studied to determine the cut-off point. Typically, the plot initially slopes downwards, and then slowly becomes a flatter, horizontal line. The number of factors corresponding to the point at which the curve begins to straighten is considered the optimal number of factors to extract (Haire et al., 2010). Cattell (1979) suggests that the number of factors to extract is one less than the number where the "scree" begins.

Hair et al. (2010) also indicate that another method of selecting the number of factors to extract is the a priori criterion. This methodology is used when the researcher already knows the number of factors that needs to be extracted. In this study, the researcher already knew the number of factors to be extracted (as determined by the theoretical model underpinning the measurement model) but

the scree test was still used to verify the reasonability of this solution and indicated if a different number of factors should perhaps be considered.

4.7.7 Promax rotation

Promax is an oblique rotation and is similar to orthogonal rotations, except that a degree of correlation between factors is allowed (Hair et al., 2010). With an oblique rotation, researchers should take additional care with the validation of scales as the correlation between factors allows an additional way of becoming specific to the sample, especially with small samples, or where there is a low cases-to-variable ratio.

4.7.8 Cronbach's alpha

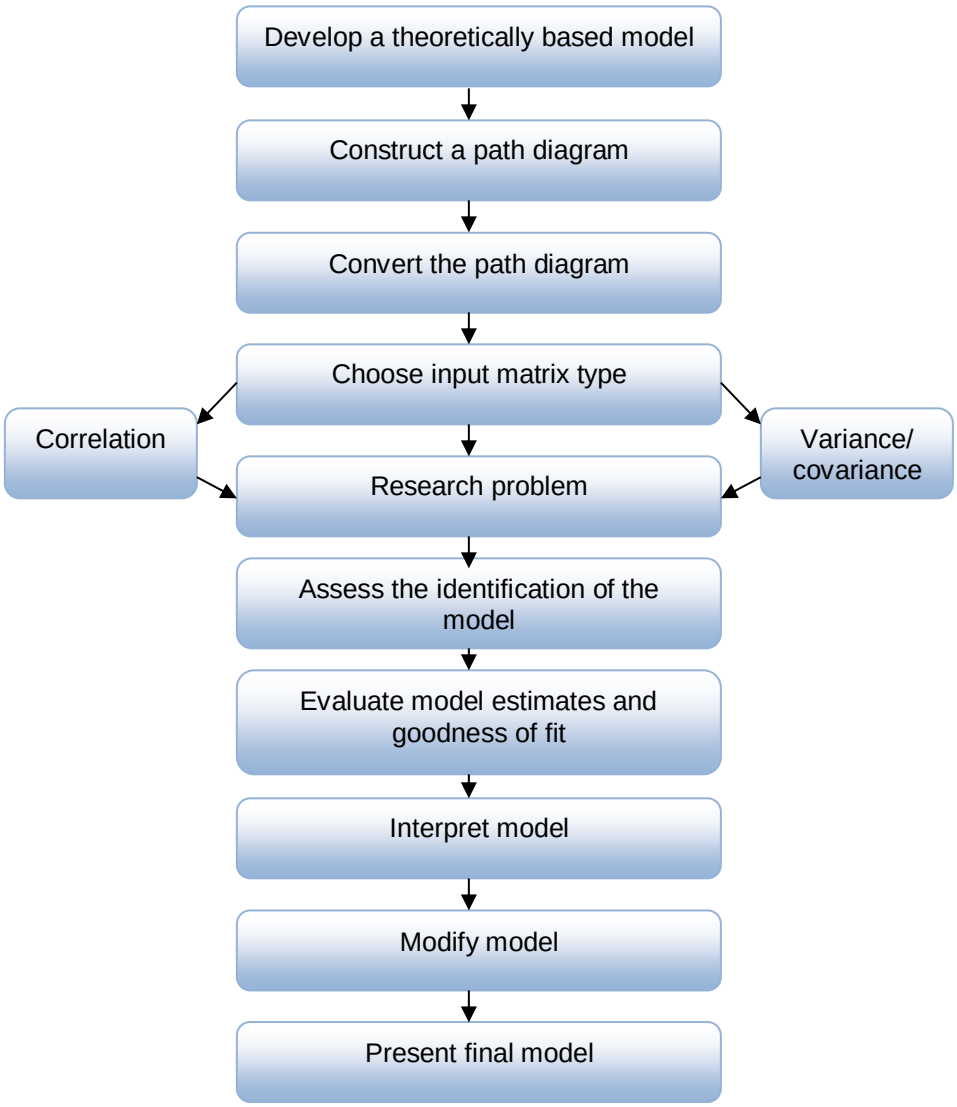
Cronbach's alpha provides a measure of internal consistency reliability (Lemke & Wiersma, 1976). This coefficient reflects the degree to which the item content agrees. According to Nunnally and Bernstein (1994), Cronbach's alpha can be equated to the average of all possible split half correlations.

4.7.9 Structural equation modelling (SEM)

Hair et al. (2010) describe SEM as a multivariate technique that combines aspects of multiple regression (like examining dependence relationships) and factor analysis (like the representation of unmeasured concepts, such as factors with multiple variables) to establish a series of interrelated dependence relationships simultaneously.

Hair et al. (2010) indicate that all SEM techniques are unique in the sense that they estimate multiple and interrelated dependence relationships; have the ability to represent unobserved concepts in relationships; and account for measurement error in this estimation process.

In the present research, SEM was used for model testing of the theoretically proposed model. The procedure that was followed in this research is graphically represented in figure 4.2 below.



Source: Adapted from Hair et al. (2010)

Figure 4.2: Process flow of model testing with SEM

The integration model of emotional intelligence as a determinant of organisational climate was firstly developed during the literature research in chapters 2 and 3. This theoretical model was tested with SEM during the empirical phase of the research.

Prior knowledge obtained during the literature research was used to construct a path diagram. The exogenous and endogenous variables were defined and the relationships, as informed by theory, were linked in the path diagram.

After the path diagram had been constructed, it was converted by translating it into a series of structural equations. The measurement models of emotional intelligence and organisational climate were specified, and the number of indicators and possible correlations between variables (again, as prescribed by the theoretical model) were determined.

During the data-input process, the impact of missing data was considered. During this research, the impact of missing data was minimised by using only the part of the sample of emotional intelligence scores that overlapped with the organisational climate scores. Another consideration at this stage was whether a correlation matrix or a variance/covariance matrix would be used. As Hair et al. (2010) point out, the variance/covariance matrix is the appropriate methodology to follow when theory is being tested – hence the use of the variance/ co-variance matrix in this research.

During the research problem stage, the sample size needs special consideration. Hair et al. (2010) recommend a sample size of 200. Because this research used a much larger sample size, the sensitivity of the chi squared as an indication of model fit was an area of concern. This research therefore focused on fit indices rather than the chi squared.

Different estimation procedures are available, but for this research maximum likelihood estimation was used. According to Hair et al. (2010), this estimation procedure becomes sensitive when samples smaller than 100, or larger than 400 are used. This was taken into account during the model testing for this research.

Various measures of assessing the identification of the structural model are available. The degrees of freedom provide an indication of the size of the covariance matrix in relation to the number of estimated coefficients to infer if the model is able to generate unique estimates (Hair et al., 2010).

Various measures of fit are also available. The fit indices indicated in table 4.3 were used during the research process.

Table 4.3: Fit indices

Measure of fit	Description	Cut-off point	References
GFI	Goodness of fit index	0.90 or higher	Hair et al. (2010); Arbuckle (2013)
AGFI	Adjusted goodness of fit index	0.90 or higher	Hair et al. (2010; Arbuckle (2013)
NFI	Normed fit index	0.90 or higher	Hair et al. (2010); Arbuckle (2013)
RFI	Relative fit index	0.90 or higher	Arbuckle (2013)
IFI	Incremental fit index	0.90 or higher	Arbuckle (2013)
CFI	Comparative fit index	0.90 or higher	Hair et al. (2010); Arbuckle (2013)
RMSEA	Root mean square error approximation	0.05 – 0.08 or smaller	Hair et al. (2010); Arbuckle (2013)

The model was interpreted with reference to the fit indices and other statistics available. When the model fit was not adequate, it was revised and a final model developed.

4.7.10 Spearman's rho

Mukaka (2012) describes a correlation as a statistical method that is used to express the possible linear association between two sets of continuous data. According to Mukaka (2012), Spearman's rho, also known as Spearman's rank order correlation coefficient, is more appropriate than Pearson's correlation

coefficient when one or both sets of data has non-parametric characteristics. The test for normality (described in section 4.7.2) was used to indicate which statistical method would be used.

For consistency, table 4.4 was used for interpretation of the correlation strengths.

Table 4.4: Interpretation of correlation strengths

Correlation size	Interpretation
0.900 to 1 (-0.900 to -1)	Very high positive (negative) correlation
0.700 to 0.900 (-0.700 to -0.900)	High positive (negative) correlation
0.500 to 0.700 (-0.500 to -0.700)	Moderate positive (negative) correlation
0.300 to 0.500 (-0.300 to -0.500)	Low positive (negative) correlation
0 to 0.300 (0 to -0.300)	Negligible correlation

Source: Mukaka (2012, p. 71)

4.7.11 Linear regression analysis

According to Nunnally and Bernstein (1994), correlations and regressions are closely related statistics. Ho (2006) indicates that where correlations focus on the magnitude and direction of the relationship between two sets of data, regressions are concerned with the use of the relationship for prediction.

The F-value is regarded as the most important statistic in regression analysis and provides a measure of how much the model has improved the prediction of the outcome as compared to the level of inaccuracy of the model. A good model should therefore have a large F-value, at least = 1. The F-value should also be significant, say $p = 0.001$ (Field, 2009).

The strength of the regression equation is indicated by the R-square, which indicates the proportion of variance accounted for in the dependent variable by the independent variable (Ho, 2006).

In this research, linear regression was only done where moderate or strong correlations were indicated. The purpose of linear regression was to indicate the strength of the particular relation.

4.7.12 Kruskal-Wallis test

The Kruskal-Wallis test is a non-parametric test to determine if more than two independent groups differ. It can be viewed as a non-parametric equivalent of the one-way independent ANOVA (Field, 2009).

4.7.13 Kolmogorov-Smirnov test

The Kolmogorov-Smirnov test is used to determine if the distribution of scores significantly differs from a normal distribution. When the p-value is significant, it indicates that the distribution is not normal (Field, 2009).

4.7.14 Post hoc Scheffé test

The one-way analysis of variance may indicate a significant difference between means but it still leaves the researcher without an indication of which differences contribute to the significance of differences. The post hoc Scheffé test is extremely useful because it allows for testing of all the differences between means, or the combined mean of two or more against the mean of one other group, or any combination of means against any other combination of means, provided that the *F*-test is significant (Kerlinger, 1986).

4.8 RESEARCH HYPOTHESES

The hypotheses for this research were as follows:

Hypothesis 1:

Work output can be measured validly and reliably with the Work Output Questionnaire.

Hypothesis 2:

Significant differences exist between the work output of different biographical and demographical categories.

Hypothesis 3:

Emotional intelligence can be measured validly and reliably with the Gerber Emotional Intelligence Scale (GEIS v1.3).

Hypothesis 4:

Emotional intelligence influences work outputs.

Hypothesis 5:

Significant differences exist between the emotional intelligence of different biographical and demographical categories.

Hypothesis 6:

Organisational climate can be measured validly and reliably with the High Performance Climate Questionnaire (HPCQ v1.3).

Hypothesis 7:

Organisational climate influences work outputs.

Hypothesis 8:

Significant differences exist between the organisational climate of different biographical and demographical categories.

Hypothesis 9:

Emotional intelligence can be seen as a determinant of organisational climate.

4.9 CHAPTER SUMMARY

In this chapter step 1 (population and sample), step 2 (determining the measurement battery), step 3 (data collection), step 4 (data analysis), step 5 (hypothesis formulation) of phase 2, the empirical research were presented and the aim of this chapter was therefore achieved (see section 1.8.).

This lays the platform for the next chapter, which will explain step 6 of the empirical research, namely the results.

CHAPTER 5: RESULTS

5.1 INTRODUCTION

In this chapter the research sample will first be described in terms of biographical and demographic variables. Thereafter the work output measurement model will be validated, following the factor analysis decision diagram as proposed in figure 4.1. This will be followed by an item analysis.

Next the emotional intelligence measurement model (GEIS v1.3) will be validated, followed by model testing to establish a link between emotional intelligence and work output. This will be followed by the study of emotional intelligence across biographical and demographical variables.

The organisational climate measurement model (HPCQ v1.3) will then be validated, the statistical model tested to establish a link between organisational climate and work output, and organisational climate studied across biographical and demographical variables.

Finally, the work output, emotional intelligence and organisational climate components will be fitted into a SEM to test the model that views emotional intelligence as a determinant of organisational climate. The *process flow of model testing with a SEM* was proposed in figure 4.2, and these steps were followed here. This model was then improved and interpreted.

This chapter will end with a summary of the hypotheses and findings to conclude step 6 (results) of phase 2 of the empirical research as proposed in section 1.8.

5.2 BIOGRAPHICAL AND DEMOGRAPHIC PROFILE OF THE SAMPLE

The sample consisted of n = 1 612 employees out of a population of 15 557 in a financial services organisation. Its head office is based in Pretoria and it has representation in all the geographical areas of South Africa. (It is important to note that these numbers will not necessarily correspond to the numbers in the biographical and demographical analysis later because missing cases were deleted from the data set to enable the generation of modification indices in AMOS.)

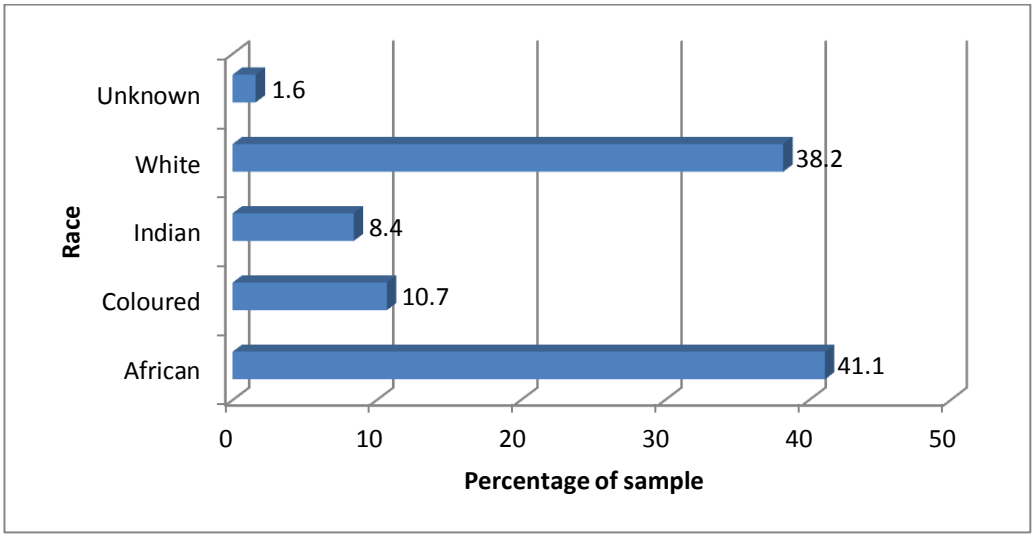


Figure 5.1: Distribution of race

From figure 5.1 above, it is clear that the sample comprised mainly of Africans (41.1%), followed by whites (38.2%), coloureds (10.7%) and Indians (8.4%). Of the responses, 1.6% gave no indication of race.

The white population seemed to be over-represented when compared to the general South African population, but was a realistic representation of the

organisation's population. This skew distribution can be attributed to politico-historical considerations.

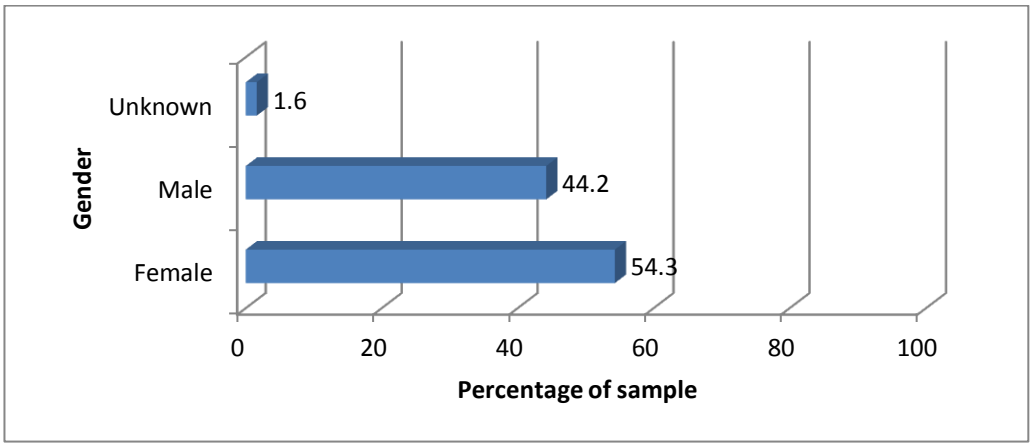


Figure 5.2: Distribution of gender

The sample was almost evenly distributed with slightly more female (54.3%) respondents than males (44.2%). The same 1.6 % of respondents gave no indication of gender.

Females were slightly over-represented in the sample when compared to the South African population. However, the figure is congruent with the gender composition of the organisation.

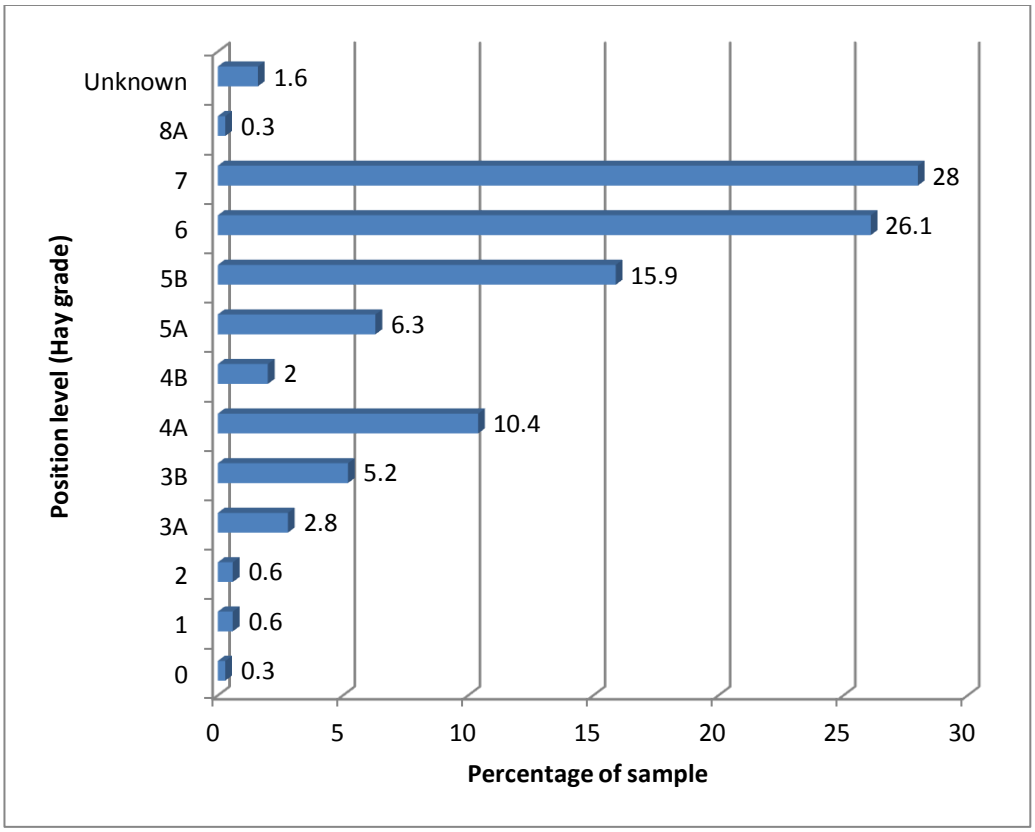


Figure 5.3: Distribution of position level

The sample was most represented by middle managers or specialists on the Hay grade of 7 (28.0%), followed by team leaders or operational specialists on a Hay grade of 6 (26.1%). The rest of the team members (grade 5B = 15.9% , grade 5A = 6.3%, grade 4B = 2%, grade 4A = 10.4%, grade 3B = 5.2%, grade 3A 2.8%, grade 2 = 0.6%, grade 1 = 0.6% and grade 0 = 0.3%) represented 44.1% of the sample. Senior managers or senior specialists (0.3%) represented the smallest part of the sample together with general assistants on grade 0. The same 1.6% of the sample could not be identified in terms of their position level.

If one considers the fact that senior and middle management formed 28.3% of the sample, team leaders 26.1% and team members 44.1%, the management category of the sample seems to be slightly over-represented when compared to the organisation as the population.

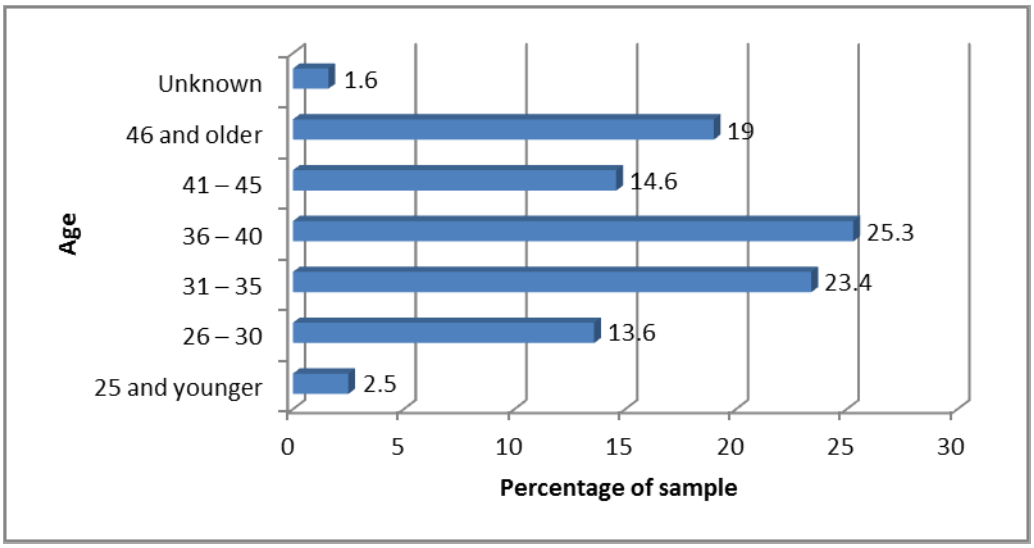


Figure 5.4: Distribution of age

The majority of the sample were in the age category of 36 to 40 years (25.3%), followed by the categories 31 to 35 (23.4%), 46 and older (19.0%), 41 to 45 (14.6%) and 26 to 30 (13.6%). The category of 25 and younger had only 2.5 % representation and the same 1.6% could not be identified in terms of their age.

Except for the low representation of the 25 and younger group (graduates, interns and newcomers), the distribution of different age categories was fairly even, although with a peak at the age of 31 to 40 (48.7%). This seems to be a fair reflection of the organisation.

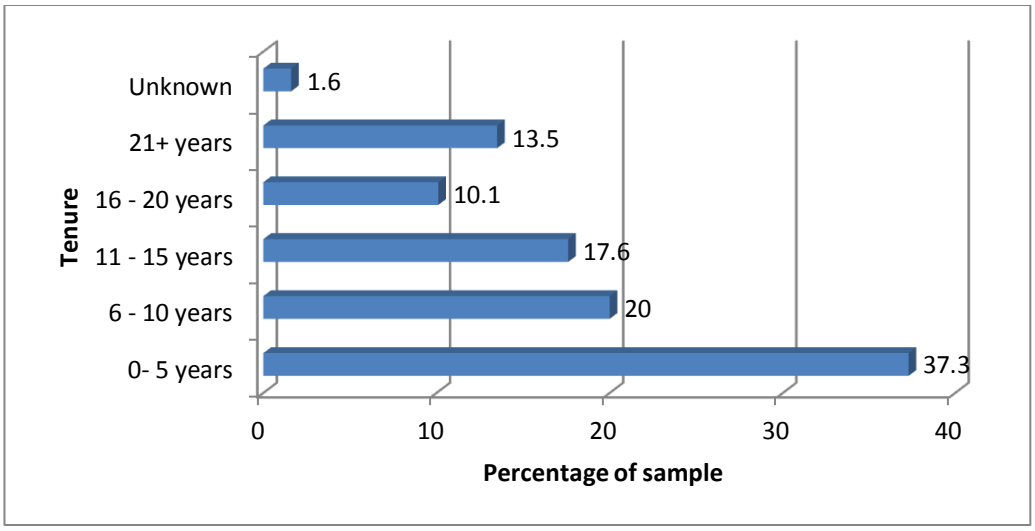


Figure 5.5: Distribution of tenure

The largest proportion of the sample had only 0 to 5 years' service (37.3%) in the organisation. This was followed by the category of 6 to 10 years (20%), 11 to 15 years (17.6%) and 21 + years (13.5%), with the least represented 16 to 20 years (10.1%). The same proportion of 1.6 % could not be identified in terms of tenure.

From the above it can be concluded that there is a "lot of young blood" in the organisation, with 57.3% of employees with fewer than 11 years of service.

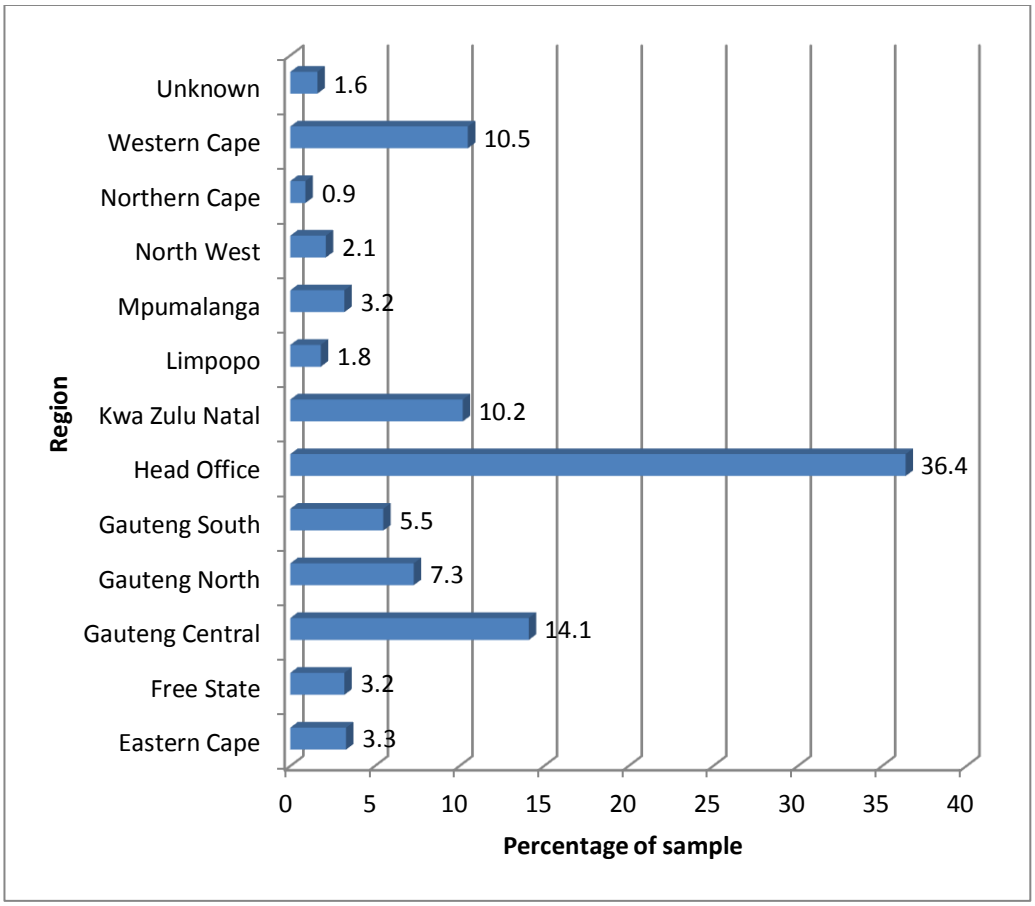


Figure 5.6: Distribution by geographical region

The geographical distribution of the sample centred around the main cities of South Africa with the head office in Pretoria, Gauteng North, (36.4%), Gauteng Central (14.1%), Western Cape (10.5%) and Gauteng North (other than the head office) (7.3%). The rest of the distribution was evenly spread between the "smaller" regions.

From the above it is clear that the head office and Gauteng North region made up more than the other regions (43.7%). This could also be attributed to the fact that the sample was mostly represented by managers and team leaders. A higher number of employees at these levels are obviously based at the head office in Pretoria.

5.3 MEASUREMENT OF WORK OUTPUT

During the validation of previous versions of the HPCQ, the researcher included some performance measures to affirm the claim that the measurement instrument is linked to high performance. (See the correlations between climate dimensions and perception ratings with client service, work motivation and productivity in annexure 4.) The Work Output Questionnaire built on the theoretical model of organisational climate derived in figure 3.6 and the integration model of emotional intelligence as a determinant of organisational climate in figure 3.7. This questionnaire was used to reveal more details of the link between work outputs, organisational climate and emotional intelligence.

The Work Output Questionnaire consisted out of five statements rated on a five-point Likert scale. They involved the following elements on which the work team was rated:

- the work satisfaction of team members
- the team's work motivation
- retention (not losing employees to other organisations)
- the achievement of performance targets
- client service delivery

5.3.1 Validity and reliability

In the sections below, validity and reliability are investigated. This investigation was an attempt to purify and improve the measurement of work output. This measurement was vital to the study because it was used in the SEM testing of the emotional intelligence – work output model, the organisational climate – work output model, and the comprehensive emotional intelligence, organisational climate and work output model.

The investigation into the Work Output Questionnaire started with exploratory principal components analysis, after which the Cronbach alpha's contribution towards the internal consistency of the overall work output measure was studied for each item.

Table 5.1: Pre-tests for exploratory factor analysis of the Work Output Questionnaire

Kaiser-Meyer-Olkin measure of sampling adequacy		0.823
Bartlett's Test of sphericity	Approx. chi-square	4549.394
	Df	10
	P	0.000

The KMO value of 0.823 was higher than 0.50, which indicates that the sample was adequate for factor analysis. The Bartlett test (p = 0.000) indicates that the correlation matrix was not an identity matrix and that factor analysis could be interpreted meaningfully.

Table 5.2: Single factor exploratory factor analysis of the Work Output Questionnaire

Component matrix

	Component
	1
Work output Q1	0.863
Work output Q2	0.884
Work output Q3	0.727
Work output Q4	0.856
Work output Q5	0.807

Principal component analysis was done and a single factor extracted. All the items loaded strongly on to the single factor, indicating communality. It could

reasonably be assumed that *work output* is measured by all five items of the Work Output Questionnaire.

The internal consistency of the work output question items are shown below to determine whether they should be retained in the final model testing of emotional intelligence as determinant of organisational climate.

Table 5.3: Cronbach alpha for the scale: Work output

Reliability statistics

Cronbach alpha	No. of items
0.883	5

Item-total statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item- total correlation	Cronbach alpha if item deleted
Work output Q1	13.3832	15.555	0.767	0.847
Work output Q2	13.2725	15.276	0.799	0.840
Work output Q3	13.5243	16.281	0.601	0.888
Work output Q4	12.9903	15.725	0.758	0.849
Work output Q5	12.7301	16.609	0.689	0.866

The overall Cronbach alpha value for the work output scale was 0.883. This is indicative of an adequate internal consistency in the measurement of work output between the items. Interestingly, if question 3 is discarded, the overall Cronbach alpha for the scale increases. Because the scale is so small (consisting of only five items), as well as the small improvement to its reliability score, the researcher decided to retain these items in order to maintain some representativity of overall work output.

In summary, the exploratory single factor analysis and internal consistency reliability study suggested a valid and reliable measurement from the Work Output Questionnaire and the questionnaire was therefore used as is in the SEM of emotional intelligence – work output model, the organisational climate – work output model, and the main study, the model of emotional intelligence as a determinant of organisational climate.

5.4 INTERPRETATION OF WORK OUTPUT DATA BASED ON BIOGRAPHICAL AND DEMOGRAPHICAL VARIABLES

In this section, the work output scores were firstly tested for normal distribution to determine if parametric or non-parametric statistical procedures should be employed in the analysis of this data set. For this purpose the Kolmogorov-Smirnov test was used. The hypothesis and *p*-values are summarised in table 5.4 below.

Table 5.4: Test for normal distribution of organisational climate data

Null hypothesis	Test	*p*-value	Decision
The distribution of Work Output Questionnaire data is normal with a mean of 3.295 and a standard deviation of 0.980	One - sample Kolmogorov-Smirnov test	0.000	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.4 above indicates that the null hypothesis (normal distribution) of work output scores was rejected because the Kolmogorov-Smirnov *p*-value was significant (p = 0.000). Non-parametric statistical procedures were therefore appropriate for the analysis of work output means across the different biographical and demographical variables.

The independent samples Kruskal-Wallis test was used to test the hypothesis that the distribution of work output scores were similar for the different biographical and demographical categories. The Kruskal-Wallis *p*-values and the results of the tests are summarised in table 5.5 below.

Table 5.5: Independent samples Kruskal-Wallis test of distribution of work output scores

Null hypothesis	Test	*p*-value	Decision
The distribution of work output data is the same across categories of race.	One - sample Kolmogorov-Smirnov test	0.907	Retain the null hypothesis
The distribution of work output data is the same across categories of gender.	One - sample Kolmogorov-Smirnov test	0.594	Retain the null hypothesis
The distribution of work output data is the same across categories of position level.	One - sample Kolmogorov-Smirnov test	0.005	Reject the null hypothesis
The distribution of work output data is the same across categories of age.	One - sample Kolmogorov-Smirnov test	0.001	Reject the null hypothesis
The distribution of work output data is the same across categories of tenure.	One - sample Kolmogorov-Smirnov test	0.314	Retain the null hypothesis
The distribution of work output data is the same across categories of geographical region.	One - sample Kolmogorov-Smirnov test	0.069	Retain the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Yellow shading indicates that the null hypothesis is rejected.

The above indicates that differences in work output scores were the result of differences in the position level and age, but did not result from differences in race, gender, tenure or geographical location.

The mean differences in work output on the basis of position level and age are investigated further in the sections below.

5.4.1 Position level

The independent samples Kruskal-Wallis test was used to test the hypothesis that the distribution of work output scores were similar for the different categories of position level. The Kruskal-Wallis *p*-values and the results of the test are summarised in table 5.6 below.

Table 5.6: Independent samples Kruskal-Wallis test for the category of position level (grade) of the work output scores

Null hypothesis	Test	*p* - value	Decision
The distribution of work output data is the same across categories of position level (grade).	Independent samples Kruskal-Wallis test	0.005	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.6 indicates that the work output scores may differ for the test takers on the basis of the category of position level (grade).

Table 5.7: Mean differences between work output scores for the category of position level (grade)

Ranks

	Position level (grade)	N	Mean rank
Work output	0	5	1079.00
	1	9	1018.11
	2	9	665.67
	3a	45	503.51
	3b	84	785.73
	4a	167	728.34
	5b	256	785.69
	6	453	777.64
	7	509	792.99
	8a	5	797.40
	Unknown	3	804.83
	Total	1545	

Interestingly, the scores of work output were the highest for the grade 0s (graduates on contract), followed by the grade 1s (low-level team members), the grade 8a's (senior managers), and grade 7s (middle managers and specialists).

5.4.2 Age

The independent samples Kruskal-Wallis test was used to test the hypothesis that the distribution of work output scores were similar for the different categories of age. The Kruskal-Wallis *p*-values and the results of the test are summarised in table 5.8 below.

Table 5.8: Independent samples Kruskal-Wallis test for the category of age of the work output scores

Null hypothesis	Test	*p* - value	Decision
The distribution of work output data is the same across categories of age.	Independent samples Kruskal-Wallis test	0.001	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.8 indicates that the work output scores differed for the test takers on the basis of the category of age.

Table 5.9: Mean differences between work output scores for the category of age

Ranks

	Age categories	N	Mean rank
Work output	0 – 25	40	696.61
	26 – 30	215	667.12
	31 – 35	374	769.79
	36 – 40	386	772.27
	41 – 45	230	835.87
	46 +	300	815.81
	Total	1 545	

Table 5.9 seems to indicate the emergence of a general pattern, namely that the older age categories were associated with higher work outputs. Two interesting deviations from this trend were identified, namely that the 0 to 25 age group was associated with higher work output measures than the 26 to 30 age group. This could be attributed to the fact that employees might have relaxed a bit after their probation period when they are appointed permanently. The other deviation is that the 46+ group was not associated with higher work outputs than the 41 to 45 age group. This could be attributed to the aging effect, or perhaps that a significant proportion in this group might have reached their career ceiling and

were no longer as motivated as the younger group.

5.5 MEASUREMENT OF EMOTIONAL INTELLIGENCE

For the purpose of measurement of emotional intelligence the GEIS v1.3 was used. The instrument was described in section 4.4 and the development and validation of its previous versions documented in annexure 1.

The validation report of the GEIS v1.2 (validation study 1B of annexure 1) recommended that the scale be expanded in future applications to increase its validity and reliability. The dimensions of *use of emotions to facilitate thought* and *perceiving emotions: self* only had four items loading on to them and did not satisfy the general rule of five. These recommendations were addressed by the addition of the following two items to the existing four of the dimension of *use of emotions to facilitate thought*:

I get myself in a serious mood when it is required of me to be evaluative; and
I intentionally try to keep cool during heavy confrontations to keep my arguments rational.

Three items were added to the existing four of the dimension of *perceiving emotions: self*:
I can tell when I am getting into a bad mood.
I usually know when I am in a bad mood.
Some mornings I wake up happy without even realising it.

The performance of the updated version will be discussed below.

5.5.1 Validity and reliability

Table 5.10: Pre- tests for the exploratory factor analysis of the GEIS v1.3

Kaiser-Meyer-Olkin measure of sampling adequacy		0.907
Bartlett's test of sphericity	Approx. chi-square	14133.975
	Df	630
	Sig.	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = 0.907) and Bartlett's test of sphericity (p = 0.000) indicated that the sample was adequate to allow for the procedure of exploratory factor analysis and meaningful interpretation of the data.

Table 5.11: Single factor exploratory factor analysis of the GEIS v1.3

Component matrix

Item	Component 1
EI Q1	0.532
EI Q2	0.430
EI Q3	0.402
EI Q4	0.511
EI Q5	0.503
EI Q6	0.396
EI Q7	
EI Q8	0.285
EI Q9	0.464
EI Q10	0.495
EI Q11	0.504
EI Q12	0.477
EI Q13	0.547
EI Q14	0.403
EI Q15	0.614
EI Q16	0.514
EI Q17	0.598
EI Q18	0.501
EI Q19	
EI Q20	0.495
EI Q21	0.526
EI Q22	0.527
EI Q23	0.580
EI Q24	0.561
EI Q25	0.589
EI Q26	0.578
EI Q27	0.568
EI Q28	0.246
EI Q29	0.527
EI Q30	0.257
EI Q31	0.616
EI Q32	0.595
EI Q33	0.489
EI Q34	0.448
EI Q35	0.181
EI Q36	

Red shading indicates factor loadings < 0.3 on the single factor

Principal component analysis was conducted and a single factor extracted first. From table 5.11 it is evident that all the items, except those indicated in red, loaded significantly on to the single factor. This indicates communality between the question items. Because the questionnaire was designed to measure emotional intelligence, it can be reasonably assumed that the communality between items was a result of the fact that the questions measure the same “thing”, namely (trait) emotional intelligence. The items indicated in red potentially add error variance to the measurement of emotional intelligence and could therefore be removed to yield greater validity and reliability assessment results. These items were, however, not discarded at this stage, but their contribution to the internal consistency of the scale was studied first to determine whether or not they would be removed.

Because the factor structure of the GEIS v1.3 was informed by the literature research as summarised in the integration part of section 2.2 and known from the validation of the GEIS v1.2, the item analysis was done first. This was followed by exploratory factor analysis to confirm the face validity of the questionnaire before confirmation using confirmatory factor analysis.

Table 5.12: Cronbach alpha for the scale: Perceiving emotions: Self

Reliability statistics (before adjustments)

Cronbach alpha	No. of items
0.713	7

Reliability statistics (after adjustments)

Cronbach alpha	No. of items
0.776	6

Item-total statistics (before adjustments)

Item-total statistics (after adjustments)

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q1	23.7468	11.900	0.543	0.666	20.7965	9.190	0.567	0.739
EI Q2	23.9085	11.558	0.484	0.670	20.9582	8.825	0.516	0.744
EI Q3	24.4479	10.377	0.460	0.671	21.4976	7.748	0.486	0.761
EI Q4	23.8707	11.401	0.554	0.657	20.9203	8.687	0.590	0.729
EI Q5	24.2760	10.310	0.557	0.644	21.3257	7.749	0.578	0.727
EI Q6	24.1080	11.410	0.452	0.674	21.1577	8.722	0.474	0.754
EI Q7	25.3312	11.696	0.161	0.776				

Red shading indicates α if item deleted > α before adjustment.

When question item EI Q7 of the perceiving emotions: self-scale was removed, the Cronbach alpha value for this scale increased from 0.713 to 0.776. This is hardly surprising because this item was indicated in the single factor analysis as a potential source of error variance, and possibly included some other factor not relevant to emotional intelligence.

If any further items were removed, the scale's Cronbach alpha would decrease, indicating a reduction in the reliability of the scale.

Table 5.13: Cronbach alpha for the scale: Use of emotions to facilitate thought

Reliability statistics

Cronbach alpha	No. of items
0.757	7

Reliability statistics

Cronbach alpha	No. of items
0.748	6

Item-total statistics (before adjustments)

Item-total statistics (after adjustments)

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q8	24.1333	13.615	0.407	0.748				
EI Q9	23.6924	14.863	0.412	0.740	19.5804	8.004	0.567	0.700
EI Q10	23.8115	13.822	0.550	0.712	19.4968	8.541	0.422	0.738
EI Q11	23.6388	14.073	0.534	0.716	19.6703	7.891	0.567	0.699
EI Q12	23.8935	13.694	0.554	0.711	19.8099	7.924	0.486	0.722
EI Q13	23.7697	14.967	0.387	0.745	20.0804	8.387	0.407	0.743
EI Q14	24.0292	13.490	0.508	0.720	19.6664	8.093	0.528	0.710

Red shading indicates α if item deleted > α before adjustment.

When question item EI Q8 of the Use of emotions to facilitate thought-scale was removed, the Cronbach alpha value for this scale decreased slightly from 0.757 to 0.748. It could therefore be argued that the cut-off value of 0.30 used with the analysis of the items on the single factor analysis was possibly a little conservative, but given the fact that the final integrated model would be rather elaborative, this item was removed to reduce all possible sources of error variance, despite the small contribution it made to the internal consistency reliability of the scale.

Table 5.14: Cronbach alpha for the scale: Perceiving emotions: Other

Reliability statistics

Cronbach alpha	No. of items
0.638	7

Reliability statistics

Cronbach alpha	No. of items
0.755	6

Item-total statistics (before adjustments)

Item-total statistics (after adjustments)

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q15	22.1309	8.759	0.500	0.557	19.5804	8.004	0.567	0.700
EI Q16	22.0473	9.145	0.399	0.587	19.4968	8.541	0.422	0.738
EI Q17	22.2208	8.583	0.517	0.550	19.6703	7.891	0.567	0.699
EI Q18	22.3604	8.617	0.440	0.571	19.8099	7.924	0.486	0.722
EI Q19	23.6609	11.173	-0.085	0.755				
EI Q20	22.6309	8.864	0.412	0.581	20.0804	8.387	0.407	0.743
EI Q21	22.2169	8.842	0.466	0.566	19.6664	8.093	0.528	0.710

Red shading indicates α if item deleted > α before adjustment.

When question item EI Q19 of the perceiving emotions: other-scale was removed, the Cronbach alpha value for this scale increased from 0.638 to 0.755. This item was also indicated in the single factor analysis as a potential source of error variance and possibly included some other factor not relevant to emotional intelligence.

Table 5.15: Cronbach alpha for the scale: Understanding emotions

Reliability statistics

Cronbach alpha	No. of items
0.799	7

Reliability statistics

Cronbach alpha	No. of items
0.840	6

Item-total statistics (before adjustments)

Item-total statistics (after adjustments)

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q22	20.7453	13.667	0.580	0.763	17.6814	11.089	0.598	0.818
EI Q23	20.5055	13.946	0.572	0.765	17.4416	11.330	0.593	0.818
EI Q24	20.8888	13.682	0.600	0.759	17.8249	11.036	0.631	0.811
EI Q25	20.4093	13.956	0.629	0.756	17.3454	11.461	0.628	0.812
EI Q26	20.4125	13.695	0.620	0.756	17.3486	11.130	0.637	0.809
EI Q27	20.4101	13.960	0.600	0.760	17.3462	11.390	0.613	0.814
EI Q28	20.9976	15.682	0.203	0.840				

Red shading indicates α if item deleted > α before adjustment.

When question item EI Q28 of the understanding emotions-scale was removed, the Cronbach alpha value for this scale increased from 0.799 to 0.840. This item was also indicated as a potential source of error variance in the measurement of emotional intelligence during single factor, factor analysis.

Table 5.16: Cronbach alpha for the scale: Managing emotions

Reliability statistics

Cronbach alpha	No. of items
0.740	8

Reliability statistics

Cronbach alpha	No. of items
0.820	5

	Item-total statistics (before adjustments)				Item-total statistics (after adjustments)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q29	23.6356	17.862	0.526	0.696	15.1782	8.824	0.570	0.797
EI Q30	24.2776	18.824	0.301	0.741				
EI Q31	23.4479	17.932	0.633	0.683	14.9905	8.974	0.672	0.772
EI Q32	23.6420	17.370	0.644	0.676	15.1845	8.525	0.690	0.763
EI Q33	23.7208	17.674	0.515	0.697	15.2634	8.510	0.591	0.791
EI Q34	24.0205	17.417	0.506	0.698	15.5631	8.374	0.566	0.801
EI Q35	24.6522	18.491	0.344	0.732				
EI Q36	25.1199	20.306	0.146	0.771				

Red shading indicates α if item deleted > α before adjustment.

When question items EI Q30, EI Q35, and EI Q36 of the managing emotions-scale were removed, the Cronbach alpha value for this scale increased from 0.740 to 0.820. When question items EI Q30 and EI Q36 were discarded, the Cronbach alpha value of the scale increased. However, with the removal of question item EI Q35, the Cronbach alpha value decreased. Regardless of the small contribution to the internal consistency of the scale, the researcher discarded the item to retain only items that loaded strongly (> 0.30) on to the single factor in table 5.11.

Table 5.17: Cronbach alpha for the overall GEIS v1.3 scale

Reliability statistics

Cronbach alpha	No. of items
0.900	29

Item-total statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
EI Q1	108.6333	164.428	0.484	0.897
EI Q2	108.7950	164.348	0.392	0.898
EI Q3	109.3344	161.808	0.358	0.899
EI Q4	108.7571	163.433	0.466	0.897
EI Q5	109.1625	160.753	0.451	0.897
EI Q6	108.9945	164.332	0.355	0.899
EI Q9	109.0323	162.297	0.422	0.898
EI Q10	109.1514	160.984	0.458	0.897
EI Q11	108.9787	161.228	0.465	0.897
EI Q12	109.2334	161.068	0.443	0.897
EI Q13	109.1096	160.429	0.500	0.896
EI Q14	109.3691	162.129	0.353	0.900
EI Q15	109.0875	160.715	0.554	0.895
EI Q16	109.0039	162.337	0.463	0.897
EI Q17	109.1774	160.616	0.539	0.896
EI Q18	109.3170	161.383	0.453	0.897
EI Q20	109.5875	161.914	0.446	0.897
EI Q21	109.1735	162.162	0.470	0.897
EI Q22	109.8517	160.595	0.465	0.897
EI Q23	109.6120	159.870	0.524	0.896
EI Q24	109.9953	160.106	0.501	0.896
EI Q25	109.5158	160.665	0.528	0.896
EI Q26	109.5189	160.135	0.515	0.896
EI Q27	109.5166	160.723	0.506	0.896
EI Q29	109.3013	160.383	0.468	0.897
EI Q31	109.1136	160.315	0.557	0.895
EI Q32	109.3076	159.506	0.540	0.896
EI Q33	109.3864	160.251	0.447	0.897
EI Q34	109.6861	160.591	0.405	0.898

Green shading indicates α in acceptable range.

Table 5.17 shows that the internal consistency reliability of the overall GEIS v1.3 was indicated by the Cronbach alpha value of 0.90. This is indicative of strong consistency in the measurement of emotional intelligence between the different emotional intelligence items of the GEIS v1.3. None of the question items, when discarded, increased the internal consistency reliability of the emotional intelligence scale any further, and it was therefore deemed ready to use in further analysis.

The preceding sections described how potential sources of error variance in the GEIS v1.3 scale were removed and the internal consistency reliability of the instrument improved. In the next sections, the focus will be on the factorial structure of the instrument to report on its validity.

Table 5.18: Pre-tests for exploratory factor analysis of the GEIS v1.3

Kaiser-Meyer-Olkin measure of sampling adequacy		0.920
Bartlett's test of sphericity	Approx. chi-square	12604.648
	Df	435
	P	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = 0.920) and Bartlett's test of sphericity (p = 0,000) indicated that the sample was adequate to allow for the procedure of exploratory factor analysis and meaningful interpretation of the data.

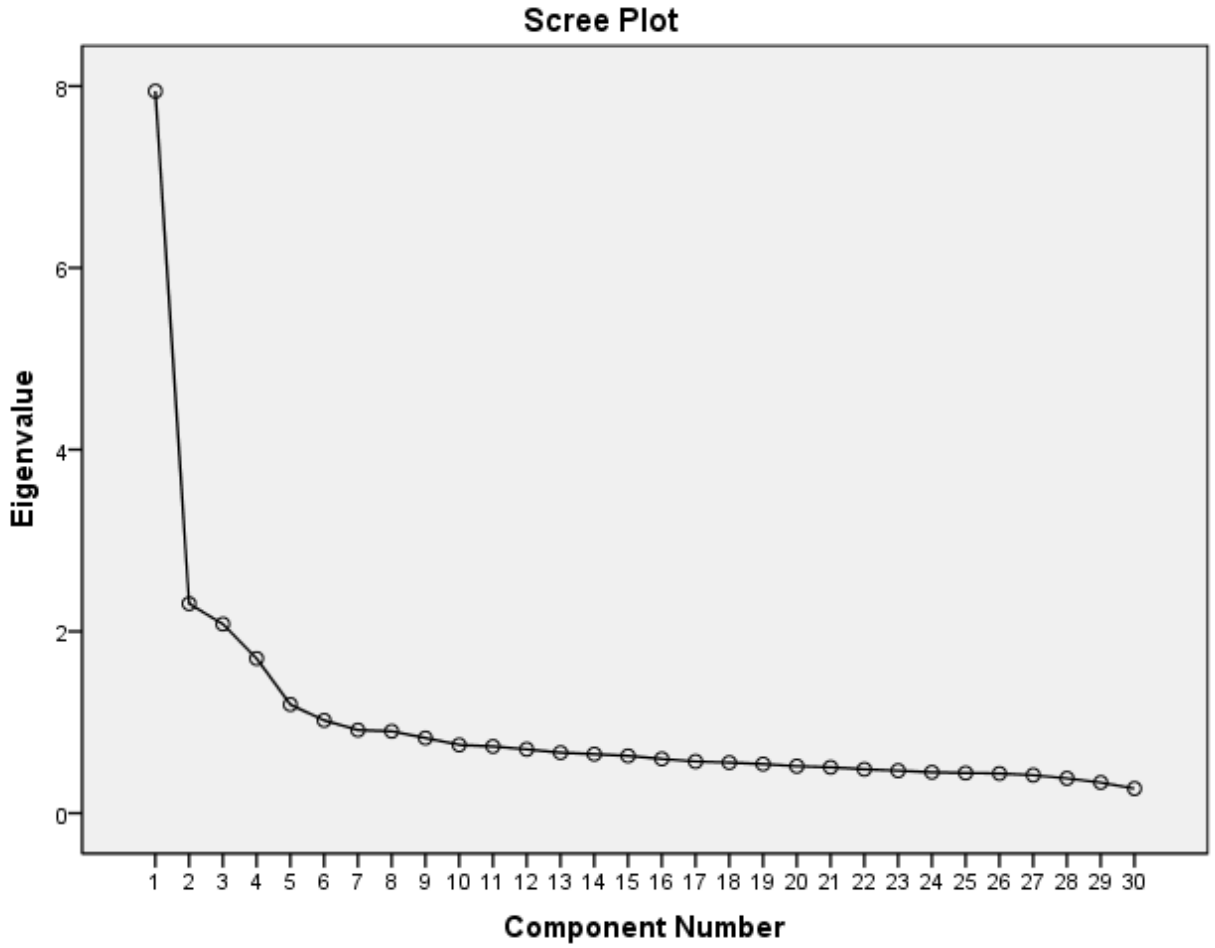


Figure 5.7: Scree plot for the GEIS v1.3

When the eigenvalues were plotted on Cattell's scree plot, a six-factor solution was shown to be appropriate. However, the questionnaire was developed to measure emotional intelligence with five distinct dimensions. These dimensions were supported by sufficient internal consistency of the measures, and the researcher thus first attempted a five-factor solution.

Principal components analysis was used, and because the initial correlation matrix was uninterpretable, a promax oblique rotation was done. The oblique rotation was appropriate because a greater degree of correlation between items is allowed than with orthogonal rotations. When one considers the fact that the

different dimensions all measure an aspect of emotional intelligence it makes sense that although the dimensions should be distinct, they should be allowed to correlate with each other.

Table 5.19: Promax rotated five-factor principal components analysis solution

	Component				
	1	2	3	4	5
EI Q1			0.623		0.226
EI Q2		-0.167	0.715	0.130	
EI Q3			0.733		-0.160
EI Q4	-0.122	0.105	0.672		0.207
EI Q5		0.106	0.706	-0.152	0.133
EI Q6	0.102	-0.193	0.707		
EI Q9				0.515	0.203
EI Q10				0.776	0.130
EI Q11	-0.122			0.729	0.229
EI Q12				0.801	
EI Q13		0.363		0.287	
EI Q14	0.128	-0.133		0.568	
EI Q15	0.200	0.134			0.552
EI Q16		0.104		0.265	0.479
EI Q17	0.247				0.552
EI Q18	0.262			0.238	0.433
EI Q20	0.485				0.164
EI Q21	0.382				0.422
EI Q22	0.746				
EI Q23	0.679				
EI Q24	0.760				
EI Q25	0.715				
EI Q26	0.709			-0.115	
EI Q27	0.705				
EI Q29	-0.110	0.824			0.163
EI Q30		0,557	-0.144	-0.233	0.116
EI Q31		0,861			0.117
EI Q32		0.853			
EI Q33	0.141	0.554	0.109	0.182	-0.418
EI Q34	0.161	0.543		0.228	-0.413

Green shading indicates that item loads on to expected factor.

Red shading indicates that item loads on to unintended factor.

The pattern matrix of the five-factor promax rotated principal components analysis is indicated in table 5.19 above.

Table 5.19 indicates the promax rotation when the theoretically informed five factors were extracted. The researcher decided on promax rotation to allow a greater degree of correlation between the dimensions, taking account of the fact that all the dimensions shared the communality of measuring the same construct, namely emotional intelligence.

All the question items loaded strongly on to the expected dimensions. Only question item EI Q13 loaded < 0.30 on to the expected dimensions, providing support for the factorial validity of the GEIS v1.3. Only two items loaded stronger than 0.30 on to other dimensions. They were items EI Q13 and EI Q21, and the cross-loadings are indicated in red in table 5.19.

In view of the earlier support for the question items, the researcher decided not to discard the two items. It is, however, worth noting and these items can be adjusted with future tool updates.

The above seems to provide some support for the validity and reliability of the measurement instrument of emotional intelligence, the GEIS v1.3, within the sample that was used for the model testing. In the next section, the factor structure of the GEIS v1.3 is tested by means of confirmatory factor analysis.

5.5.2 Confirmatory factor analysis of the GEIS v1.3

The above-mentioned exploratory factor analysis and reliability study provided reasonable grounds to believe that the GEIS v1.3 is valid and reliable. Next, the factor structure of the GEIS v1.3 was tested by means of confirmatory factor analysis to provide a more conclusive view on the validity of the instrument.

In the following sections, the path diagrams and fit indices of the confirmatory factor analysis are presented. Modification indices are also consulted and discussed in an effort to improve the model.

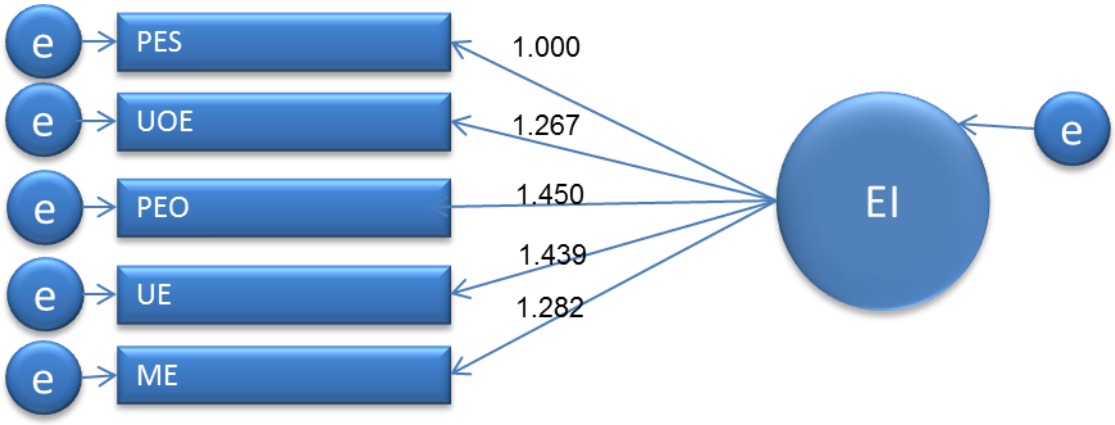


Figure 5.8: Path diagram of the GEIS v1.3

The regression estimates between the dimensions of emotional intelligence and the overall emotional intelligence scores are all high.

Table 5.20: Fit indices for the confirmatory factor analysis of the GEIS v1.3

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.973	0.920	0.946	0.893	0.949	0.898	0.949	0.115

Red shading indicates values outside the acceptable range.

The RFI and TLI indices came close, but did not not reach the 0.90 critical value. Of greater concern, however, was the relatively high value of RMSEA = 0.115.

In the next paragraph, changes to the GEIS model are considered in order to confirm the structure of the model.

Table 5.21: Modification indices to improve the model fit of the GEIS

			Modification index	Estimated regression change
ME	<---	PEO	5.840	-0.076
ME	<---	UOE	12.102	0.099
UE	<---	PEO	4.730	0.058
UE	<---	UOE	16.120	-0.097
UE	<---	PES	5.558	-0.062
PEO	<---	ME	16.570	-0.065
PEO	<---	UE	9.616	0.054
UOE	<---	ME	14.973	0.077
UOE	<---	UE	14.291	-0.082
UOE	<---	PES	7.316	0.068
PES	<---	UOE	5.808	0.055

Yellow shading indicates highest modification index.

In table 5.21 above, the strongest modification index suggested a link between managing emotions (ME) and perceiving emotions: other (PEO). (The modification index provides a conservative estimate of the decrease in chi-square if the two variables are allowed to correlate.) Since a link between the two dimensions could be argued from a theoretical perspective (the dimensions of emotional intelligence impact each other), the model was modified and tested again. The approximate estimate (based on the current model) of how much the regression would change, if it was not fixed at 0, is also provided in the far right column.

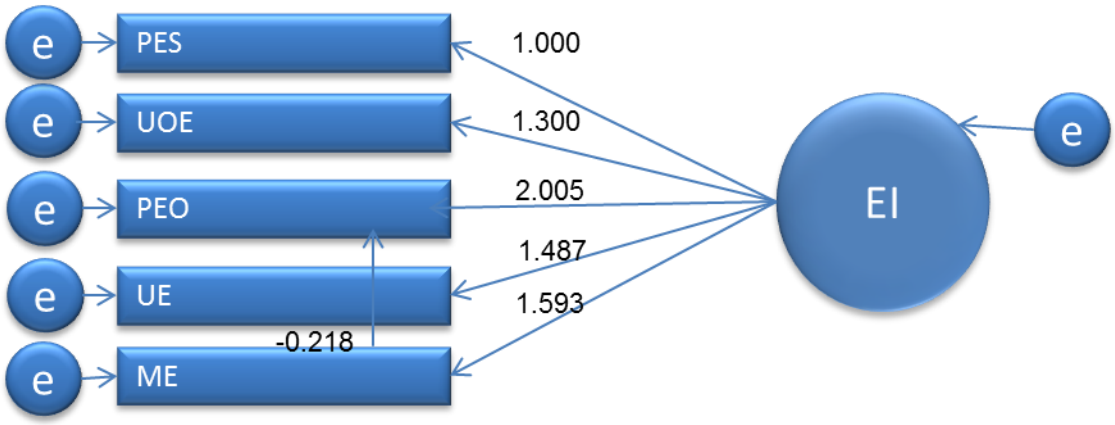


Figure 5.9: Adjusted path diagram of the GEIS v1.3

Figure 5.9 indicates the adjusted GEIS v1.3 which incorporates the link between managing emotions and perceiving emotions: other. The strong regression weights between the dimensions of emotional intelligence and the overall emotional intelligence score were retained. A low negative regression weight between the two dimensions was obtained.

Table 5.22: Fit indices for the confirmatory factor analysis of the adjusted GEIS v1.3

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.987	0.952	0.976	0.939	0.978	0.945	0.978	0.085

Red shading indicates value outside acceptable range.

According to table 5.22, the fit indices improved so that all were above the 0.90 critical value, but the RMSEA was still above the 0.05 to 0.08 critical value. Hence the modification indices were referred to again in order to improve the RMSEA.

Table 5.23: Modification indices to improve the model fit of the GEIS v1.3 – second round

			Modification index	Estimated regression change
UE	<---	UOE	5.179	-0.054
UOE	<---	UE	4.667	-0.046
UOE	<---	PES	17.349	0.103
PES	<---	UOE	14.154	0.086

Yellow shading indicates highest modification index.

The modification indices suggest a link between Perceive emotions self (PES) and to Use of emotions to facilitate thought (UOE) as the strongest single modification. Because the two dimensions are related to the same construct, it appears to be a rational modification to the GEIS v1.3 model.

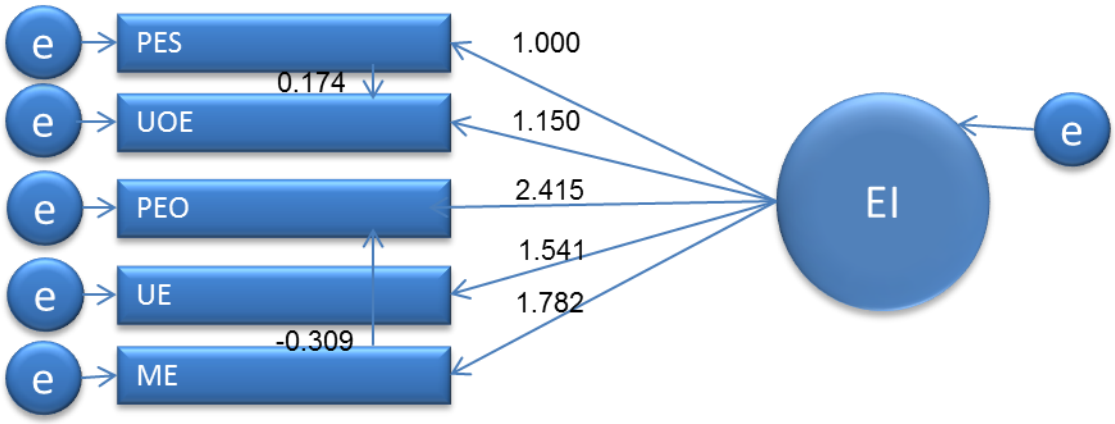


Figure 5.10: Second-time adjusted path diagram of the GEIS v1.3

The suggested modification was applied to the GEIS v1.3 model with the link from perceiving emotions: self to use of emotions to facilitate thought.

The strong regression weights between the emotional intelligence dimensions and the overall emotional intelligence score were retained. A low regression

weight between perceiving emotions: self and use of emotions to facilitate thought was obtained.

Table 5.24: Fit indices for the confirmatory factor analysis of the adjusted GEIS v1.3

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.997	0.983	0.993	0.978	0.995	0.984	0.995	0.045

From the above it is clear that all the fit indices exceeded the 0.90 critical value and the RMSEA was smaller than 0.05 to 0.08, confirming the factor structure of the GEIS v1.3. This model, which maintains that emotional intelligence predicts work output, is therefore supported by SEM, but the magnitude of the prediction from emotional intelligence to work output is low.

5.5.3 Emotional intelligence and work output

The relationship between trait emotional intelligence and work output has attracted a lot of attention in the literature. This relationship is tested below using SEM and explored further with correlations and linear regression. .

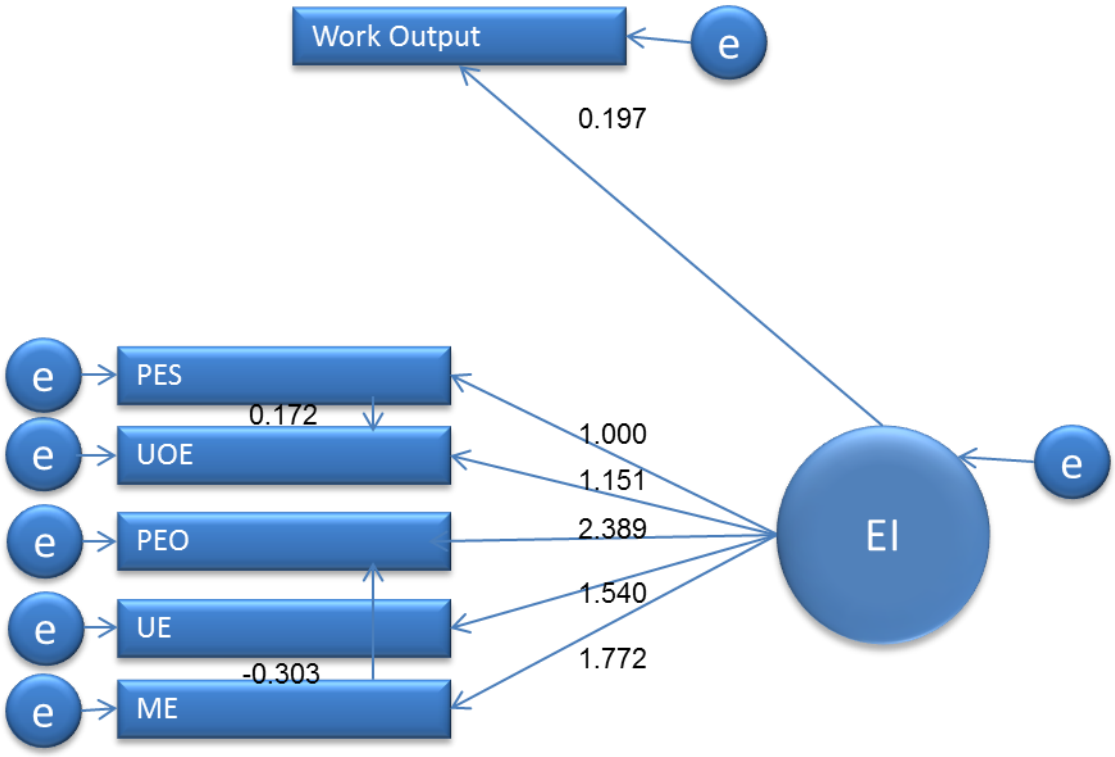


Figure 5.11: SEM for emotional intelligence and work output

In the above path diagram, work output was entered into the GEIS v1.3 confirmatory factor analysis model as presented in figure 5.10. Similar strong regression weights were estimated using SEM between the dimensions of emotional intelligence and the overall emotional intelligence score. Weak regression weights also appeared between perceiving emotions: self and use of emotions to facilitate thought, and managing emotions and perceiving emotions: other. In addition, this model also yielded a weak regression weight between emotional intelligence and work output.

Table 5.25: Fit indices for the emotional intelligence – work output model

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.996	0.988	0.991	0.980	0.995	0.989	0.995	0.031

All the fit indices were strong (with the GFI = 0.996, and IFI and CFI = 0.995) and the RMSEA below the 0.05 to 0.08 critical values. This model confirms that trait emotional intelligence predicts work output. The nature of the relationship between emotional intelligence and work outputs will be explored further with correlations and regression analysis.

Table 5.26: Correlations between emotional intelligence and work output

		PES	UOE	PEO	UE	ME	Overall GEIS
Work output	Spearman's rho	0.069*	0.109**	0.068**	0.056*	0.074**	0.099**
	p value (2-tailed)	0.014	0.000	0.015	0.048	0.009	0.000
	N	1268	1268	1268	1268	1268	1268

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

Because the data was not normally distributed, Spearman's rho was calculated as a measure of association. The emotional intelligence dimensions correlated with work output, with values ranging between 0.109 and 0.056 and a correlation between the overall GEIS v1.3 and overall work output of 0.099. These noticeably low correlations indicate an extremely weak link between emotional intelligence and work output.

Emotional intelligence does therefore predict work output in a statistically significant way, but is negligibly weak in doing so. This finding echoes the inconsistent link between emotional intelligence and performance-related measures reported in the literature.

In the next sections, emotional intelligence data is analysed in terms of biographical and demographical variables.

5.6 INTERPRETATION OF EMOTIONAL INTELLIGENCE DATA BASED ON BIOGRAPHICAL AND DEMOGRAPHICAL VARIABLES

Firstly, the emotional intelligence scores were tested for normal distribution to determine which statistical procedures should be employed in the rest of the analysis of the data set. For this purpose, the Kolmogorov-Smirnov test was used. The hypothesis and *p*- values are summarised in table 5.27 below.

Table 5.27: Test for normal distribution of emotional intelligence data

Null hypothesis	Test	*p*- value	Decision
The distribution of the GEIS v1.3 emotional intelligence data is normal with a mean of 3.902 and a standard deviation of 0.45.	One - sample Kolmogorov-Smirnov test	0.002	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.27 indicates that the null hypothesis (normal distribution of emotional intelligence scores) was rejected because all the Kolmogorov-Smirnov *p*- values were significant ($p < 0.05$). Non-parametric statistical procedures were therefore appropriate in determining the mean differences between different categories of test takers.

The independent sample Kruskal-Wallis test was used to test the hypothesis that the distribution of emotional intelligence scores is similar for the different biographical and demographical categories. The Kruskal-Wallis *p*- values and the results of the tests are summarised in table 5.28 below.

Table 5.28: Independent samples Kruskal-Wallis test for the category of race of the emotional intelligence scores

Null Hypothesis	Test	*p* – value	Decision
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of race.	One - sample Kolmogorov-Smirnov test	0.141	Retain the null hypothesis
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of gender.	One - sample Kolmogorov-Smirnov test	0.365	Retain the null hypothesis
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of position level.	One - sample Kolmogorov-Smirnov test	0.493	Retain the null hypothesis
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of age.	One - sample Kolmogorov-Smirnov test	0.187	Retain the null hypothesis
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of tenure.	One - sample Kolmogorov-Smirnov test	0.167	Retain the null hypothesis
The distribution of the GEIS v1.3 Emotional intelligence data is the same across categories of geographical region.	One - sample Kolmogorov-Smirnov test	0.435	Retain the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Although differences between some dimensional scores may be visible on the basis of the above biographical and demographic variables, the overall trait emotional score (as obtained from GEIS v1.3) did not significantly differ across these variables.

At first glance, the above findings seem incongruent with the theory of emotional intelligence, but one should remember that the sample was not a heterogeneous one. The organisation in which the research was conducted has carefully selected employees for specific positions, using both psychometric and other assessment methodologies. A supervisory (or managerial) assessment battery,

for example, would directly and/or indirectly, include emotional intelligence traits or competencies that load on to these traits. One can therefore assume the lower end of the normal distribution of emotional intelligence trait scores has been "removed" by selection methodologies, leaving this sample fairly homogeneous with less variance (across biographical and demographical variables) than would have been the case if a random sample of the general population had been selected. The fact that no significant variation of emotional intelligence scores across the biographical and demographic variables was evident can be attributed to the inefficiencies inherent in the sampling methodology, rather than a result of the instrument used.

5.7 MEASUREMENT OF ORGANISATIONAL CLIMATE

The High Performance Climate Questionnaire version 1.3 (HPCQ v1.3) was used to measure organisational climate. The instrument was described in section 4.5 and the development and validation of its previous versions documented in annexure 4.

The validation report of the HPCQ v1.2 concluded that the dimensions of *satisfaction*, *change* and *diversity* should be increased to have at least five items each prior to use in the main research. This recommendation was accommodated by the addition of the following four items to the existing four in the dimension of *satisfaction*:

- *I get to do interesting things in my job.*
- *My job provides me with enough opportunities.*
- *All in all, I enjoy my work.*
- *When I go home, I feel I have accomplished something*.

The following two items were added to the four items in *change:*

- *Quite a number of sensible changes were implemented over the last year.*
- *Changes are usually met with strong resistance at [our organisation]* (negative item).

The following four items were added to the three items in *diversity*:

- *[Our organisation] makes an effort to be representative in terms of racial, cultural, religious, gender and disability status.*
- *Employees with different racial, cultural, religious, gender and disability status work together in harmony.*
- *Employees with different racial, cultural, religious, gender and disability status trust each other.*
- *Discriminatory practices on the basis of racial, cultural, religious, gender, and disability status have been removed completely at [our organisation].*

5.7.1 Validity and reliability

Principal component analysis was done and a single factor extracted first.

Table 5.29: Pre-tests for exploratory factor analysis of HPCQ v1.3

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.975
Bartlett's test of sphericity	Approx. chi-square	110497.663
	Df	4656
	P	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = 0.975) and Bartlett's test of sphericity (p = 0.000) indicated that the sample was adequate to allow for the procedure of exploratory factor analysis and meaningful interpretation of the data.

Table 5.30: Single factor exploratory factor analysis of the HPCQ v1.3

Component matrix

	Component
	1
Q1 A 1	0.624
Q1 A 2	0.666
Q1 A 3	0.666
Q1 A 4	0.584
Q1 A 5	0.663
Q1 A 6	0.480
Q2 A 1	0.431
Q2 A 2	0.544
Q2 A 3	0.604
Q2 A 4	0.587
Q2 A 5	0.539
Q2 A 6	0.502
Q2 A 7	0.266
Q3 A 1	0.627
Q3 A 2	0.532
Q3 A 3	0.600
Q3 A 4	0.635
Q3 A 5	0.637
Q3 A 6	0.679
Q3 A 7	0.582
Q3 A 8	0.532
Q4 A 1	0.684
Q4 A 2	0.497
Q4 A 3	0.573
Q4 A 4	0.559
Q4 A 5	0.560
Q5 A 1	0.549
Q5 A 2	0.503
Q5 A 3	0.611
Q5 A 4	0.585
Q5 A 5	0.412
Q6 A 1	0.531
Q6 A 2	0.533
Q6 A 3	0.516
Q6 A 4	0.447
Q6 A 5	0.548

Q7 A 1	0.649
Q7 A 2	0.655
Q7 A 3	0.586
Q7 A 4	0.524
Q7 A 5	0.630
Q7 A 6	0.493
Q8 A 1	0.552
Q8 A 2	0.646
Q8 A 3	0.661
Q8 A 4	0.587
Q8 A 5	0.497
Q8 A 6	0.124
Q9 A 1	0.624
Q9 A 2	0.638
Q9 A 3	0.682
Q9 A 4	0.664
Q9 A 5	0.648
Q9 A 6	0.649
Q10 A 1	0.513
Q10 A 2	0.501
Q10 A 3	0.517
Q10 A 4	0.503
Q10 A 5	0.594
Q11 A 1	0.556
Q11 A 2	0.539
Q11 A 3	0.618
Q11 A 4	0.588
Q11 A 5	0.572
Q11 A 6	0.547
Q11 A 7	0.526
Q12 A 1	0.700
Q12 A 2	0.518
Q12 A 3	0.577
Q12 A 4	0.464
Q12 A 5	0.600
Q12 A 6	0.682
Q12 A 7	0.281
Q13 A 1	0.510
Q13 A 2	0.541
Q13 A 3	0.624
Q13 A 4	0.546
Q13 A 5	0.581
Q13 A 6	0.627

Q14 A 1	0.642
Q14 A 2	0.695
Q14 A 3	0.644
Q14 A 4	0.720
Q14 A 5	0.685
Q15 A 1	0.590
Q15 A 2	0.562
Q15 A 3	0.550
Q15 A 4	0.575
Q15 A 5	0.614
Q15 A 6	0.693
Q15 A 7	-0.150
Q16 A 1	0.585
Q16 A 2	0.629
Q16 A 3	0.620
Q16 A 4	0.685
Q16 A 5	0.570
Q16 A 6	0.569

Red shading indicates a factor loading at < 0.30 on the single factor.

From the above it is clear that all items, except four, loaded strongly (> 0.30) on to the single factor principal components analysis. This indicates that all items, with the exception of the four mentioned above (and shaded red in table 5.30), had something in common, presumably the fact that they all measure organisational climate.

In the next sections these and other items are discussed in greater detail, in order to also consider their contribution in the internal consistency of their respective dimensions in the overall organisational climate measurement. Because the model is fairly large the decision-making rules were used conservatively to minimise potential areas of error variance.

The instrument was validated before the dimensional structure of the HPCQ v1.3 had been used to perform an item analysis per pre-defined dimension. This indicated whether items needed to be eliminated for this study. A principal components analysis followed and was then used to demonstrate the content

validity of the instrument. Content validly was confirmed (utilising confirmatory factor analysis) before the interaction between the HPCQ v1.3 and work output was investigated by means of SEM, correlations and linear regression analysis.

Table 5.31: Cronbach alpha for the scale: Empowerment

Reliability statistics

Cronbach alpha	No. of items
0.908	6

Reliability statistics

Cronbach alpha	No. of items
0.911	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q1 A 1	15.97	23.145	0.750	0.890	12.53	16.120	0.769	0.893
Q1 A 2	16.13	23.022	0.787	0.885	12.69	15.954	0.816	0.883
Q1 A 3	16.33	23.440	0.795	0.884	12.89	16.384	0.815	0.884
Q1 A 4	16.12	23.178	0.736	0.892	12.68	16.764	0.677	0.912
Q1 A 5	16.19	22.698	0.802	0.882	12.75	15.884	0.804	0.885
Q1 A 6	15.88	24.796	0.601	0.911				

Red shading indicates α if item deleted > α before adjustment

Despite the relatively good loading on the single factor (0.480), the presence of question item Q1 A 6 reduced the Cronbach alpha of this dimension. When discarded, the Cronbach alpha of the dimension increased from 0.908 to 0.911. This item was thus discarded for further analysis.

Table 5.32: Cronbach alpha for the scale: Training

Reliability statistics

Cronbach alpha	No. of items
0.859	7

Reliability statistics

Cronbach alpha	No. of items
0.898	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q2 A 1	18.98	27.739	0.401	0.868				
Q2 A 2	19.49	22.771	0.766	0.817	12.44	14.398	0.792	0.866
Q2 A 3	19.47	23.063	0.828	0.809	12.42	14.781	0.839	0.855
Q2 A 4	19.55	22.890	0.832	0.808	12.50	14.561	0.855	0.851
Q2 A 5	19.29	24.475	0.737	0.824	12.24	15.944	0.742	0.877
Q2 A 6	19.83	25.831	0.524	0.854	12.77	16.934	0.534	0.921
Q2 A 7	19.26	28.655	0.319	0.878				

Red shading indicates α if item deleted > α before adjustment

When question items Q2 A 1 and Q2 A 7 were discarded, the Cronbach alpha of the dimension increased from 0.859 to 0.898. Question item Q2 A 7 also loaded lower than 0.30 on to the single factor. In order to reduce error variance from the climate model, both question items were discarded.

Table 5.33: Cronbach alpha for the scale: Satisfaction

Reliability statistics

Cronbach alpha	No. of items
0.940	8

Reliability statistics

Cronbach alpha	No. of items
0.940	8

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q3 A 1	25.13	43.941	0.769	0.934	25.13	43.941	0.769	0.934
Q3 A 2	25.29	41.756	0.792	0.932	25.29	41.756	0.792	0.932
Q3 A 3	25.22	42.172	0.840	0.929	25.22	42.172	0.840	0.929
Q3 A 4	25.52	41.970	0.790	0.932	25.52	41.970	0.790	0.932
Q3 A 5	25.10	42.582	0.852	0.928	25.10	42.582	0.852	0.928
Q3 A 6	25.26	42.602	0.826	0.930	25.26	42.602	0.826	0.930
Q3 A 7	25.17	44.354	0.684	0.939	25.17	44.354	0.684	0.939
Q3 A 8	25.09	42.658	0.755	0.935	25.09	42.658	0.755	0.935

None of the items of the satisfaction scale increased the internal consistency reliability of the scale when discarded. Hence all the question items in this dimension were retained. The Cronbach alpha of the satisfaction scale was 0.940, which indicates extremely strong internal consistency.

Table 5.34: Cronbach alpha for the scale: Teamwork

Reliability statistics

Cronbach alpha	No. of items
0.877	5

Reliability statistics

Cronbach alpha	No. of items
0.878	4

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q4 A 1	14.14	12.500	0.589	0.878				
Q4 A 2	14.34	11.773	0.680	0.857	10.69	7.489	0.676	0.867
Q4 A 3	14.14	11.394	0.806	0.827	10.49	7.224	0.801	0.819
Q4 A 4	14.34	11.675	0.707	0.851	10.69	7.407	0.706	0.856
Q4 A 5	14.18	11.383	0.762	0.837	10.53	7.151	0.768	0.831

Red shading indicates α if item deleted > α before adjustment

When question item Q4 A 1 was discarded, the internal consistency reliability of the teamwork scale increased from 0.877 to 0.878. Although this question item loaded strongly on to the single factor (0.684) and the increase in the Cronbach alpha value was minimal, the item was discarded in order to reduce potential sources of error variance from the HPCQ model. As indicated, prior to item analysis, because the SEM of emotional intelligence as a determinant of organisational climate was a large model, the decision-making rules for discarding items were used conservatively in the HPCQ. Because of its length, this questionnaire had much more room to eliminate potential sources of error than with the GEIS v1.3 or the Work Output Questionnaire. Whereas this item (Q4 A 1) would, under other circumstances, not be discarded, it was the strategy to be conservative in building the main model later in this empirical research, which is why the item was discarded here.

Table 5.35: Cronbach alpha for the scale: Retention

Reliability statistics

Cronbach alpha	No. of items
0.870	5

Reliability statistics

Cronbach alpha	No. of items
0.872	4

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q5 A 1	13.39	14.217	0.776	0.824	10.04	8.846	0.766	0.822
Q5 A 2	13.43	14.067	0.778	0.823	10.08	8.659	0.781	0.815
Q5 A 3	13.79	13.851	0.756	0.827	10.44	8.477	0.759	0.823
Q5 A 4	14.26	14.849	0.607	0.864	10.91	9.213	0.611	0.883
Q5 A 5	13.82	15.003	0.577	0.872				

Red shading indicates α if item deleted > α before adjustment

When question item Q5 A 5 was discarded, the Cronbach alpha increased from 0.870 to 0.872. Despite the relatively good loading on the single factor (0.412), this item was discarded. Interestingly, after this item had been discarded, it was indicated above that if Q5 A 4 had been discarded the Cronbach alpha would have increased even further to 0.883. The researcher, however, decided not to discard any further items because the dimension of retention already had only four items representing it. Again, as with item Q4 A 1 under the dimension of teamwork, if the strategy had been not to be too conservative with the HPCQ items in building towards an overall empirical model, then this item could have been retained.

Table 5.36: Cronbach alpha for the scale: Client service

Reliability statistics

Cronbach alpha	No. of items
0.893	5

Reliability statistics

Cronbach alpha	No. of items
0.893	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q6 A 1	14.49	11.299	0.665	0.885	14.49	11.299	0.665	0.885
Q6 A 2	14.71	10.046	0.825	0.850	14.71	10.046	0.825	0.850
Q6 A 3	15.16	9.772	0.755	0.867	15.16	9.772	0.755	0.867
Q6 A 4	15.11	10.836	0.647	0.890	15.11	10.836	0.647	0.890
Q6 A 5	14.75	10.406	0.818	0.853	14.75	10.406	0.818	0.853

Red shading indicates α if item deleted > α before adjustment

None of the items in the client service dimension improved the Cronbach alpha when they were discarded. These items also loaded stronger than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and client service.

Table 5.37: Cronbach alpha for the scale: Individual

Reliability statistics

Cronbach alpha	No. of items
0.849	6

Reliability statistics

Cronbach alpha	No. of items
0.849	6

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q7 A 1	19.68	11.231	0.604	0.836	19.68	11.231	0.604	0.836
Q7 A 2	19.34	12.136	0.597	0.832	19.34	12.136	0.597	0.832
Q7 A 3	19.03	12.304	0.718	0.811	19.03	12.304	0.718	0.811
Q7 A 4	19.06	12.379	0.660	0.820	19.06	12.379	0.660	0.820
Q7 A 5	19.08	12.211	0.713	0.811	19.08	12.211	0.713	0.811
Q7 A 6	18.90	13.052	0.557	0.838	18.90	13.052	0.557	0.838

Red shading indicates α if item deleted > α before adjustment

None of the items in the individual dimension improved the Cronbach alpha when discarded. These items also loaded stronger than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension of individual.

Table 5.38: Cronbach alpha for the scale: Change

Reliability statistics

Cronbach alpha	No. of items
0.783	6

Reliability statistics

Cronbach alpha	No. of items
0.843	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q8 A 1	15.64	12.345	0.515	0.754	12.76	10.957	0.510	0.846
Q8 A 2	15.68	11.108	0.684	0.710	12.80	9.580	0.721	0.790
Q8 A 3	15.88	11.066	0.710	0.704	13.00	9.520	0.752	0.781
Q8 A 4	16.18	11.402	0.707	0.708	13.31	10.056	0.706	0.796
Q8 A 5	15.70	12.065	0.528	0.751	12.83	10.466	0.563	0.834
Q8 A 6	16.17	15.208	0.100	0.843				

Red shading indicates α if item deleted > α before adjustment

When question item Q8 A 6 was discarded, the Cronbach alpha of the dimension of change increased from 0.783 to 0.843. This item also loaded weakly on to the single factor (0.124), indicating a possible source of error variance in the measurement of organisational climate. Interestingly, after this item had been discarded it was indicated that the Cronbach alpha of the change dimension would further increase (marginally) by discarding item Q8 A 1. The researcher decided against this adaptation because one item had already been discarded from this dimension and the incremental benefit of such a small increase was overshadowed by having an extra item representing the dimension.

Table 5.39: Cronbach alpha for the scale: Goals

Reliability statistics

Cronbach alpha	No. of items
0.900	6

Reliability statistics

Cronbach alpha	No. of items
0.900	6

	Item-total statistics (before adjustment)				Item-Total Statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q9 A 1	17.45	16.639	0.698	0.887	17.45	16.639	0.698	0.887
Q9 A 2	17.42	16.266	0.706	0.886	17.42	16.266	0.706	0.886
Q9 A 3	17.56	16.411	0.749	0.879	17.56	16.411	0.749	0.879
Q9 A 4	17.37	16.819	0.730	0.882	17.37	16.819	0.730	0.882
Q9 A 5	17.27	16.560	0.751	0.879	17.27	16.560	0.751	0.879
Q9 A 6	17.23	16.577	0.735	0.881	17.23	16.577	0.735	0.881

None of the items in the goals dimension improved the Cronbach alpha when discarded. These items also loaded stronger than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension goals.

Table 5.40: Cronbach alpha for the scale: Vision and mission

Reliability statistics

Cronbach's alpha	No of items
0.852	5

Reliability statistics

Cronbach's alpha	No of items
0.852	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Q10 A 1	14.50	9.850	0.621	0.837	14.50	9.850	0.621	0.837
Q10 A 2	15.05	8.271	0.707	0.811	15.05	8.271	0.707	0.811
Q10 A 3	14.81	8.740	0.733	0.806	14.81	8.740	0.733	0.806
Q10 A 4	15.16	8.196	0.704	0.811	15.16	8.196	0.704	0.811
Q10 A 5	15.27	8.483	0.598	0.844	15.27	8.483	0.598	0.844

None of the items in the vision and mission dimension improved Cronbach's alpha when discarded. These items also loaded stronger than 0.30 onto the single factor indicating strong communality between the items in the measurement of both organisational climate and its dimension of mission and vision.

Table 5.41: Cronbach alpha for the scale: Diversity

Reliability statistics

Cronbach alpha	No. of items
0.919	7

Reliability statistics

Cronbach alpha	No. of items
0.919	7

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q11 A 1	20.06	27.187	0.705	0.912	20.06	27.187	0.705	0.912
Q11 A 2	20.05	27.853	0.691	0.913	20.05	27.853	0.691	0.913
Q11 A 3	20.43	25.318	0.801	0.902	20.43	25.318	0.801	0.902
Q11 A 4	20.14	27.066	0.796	0.903	20.14	27.066	0.796	0.903
Q11 A 5	20.53	26.619	0.785	0.904	20.53	26.619	0.785	0.904
Q11 A 6	20.72	26.258	0.751	0.907	20.72	26.258	0.751	0.907
Q11 A 7	20.44	27.336	0.731	0.909	20.44	27.336	0.731	0.909

None of the items in the diversity dimension improved Cronbach's alpha when discarded. These items also loaded stronger than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension diversity.

Table 5.42: Cronbach alpha for the scale: Creativity

Reliability statistics

Cronbach alpha	No. of items
0.836	7

Reliability statistics

Cronbach alpha	No. of items
0.866	6

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q12 A 1	21.31	16.760	0.631	0.806	18.06	13.887	0.617	0.851
Q12 A 2	20.85	17.199	0.601	0.811	17.60	14.064	0.624	0.849
Q12 A 3	21.03	16.640	0.682	0.799	17.78	13.631	0.694	0.837
Q12 A 4	21.07	17.852	0.547	0.820	17.82	14.647	0.572	0.858
Q12 A 5	21.18	16.155	0.737	0.789	17.93	13.162	0.754	0.826
Q12 A 6	21.25	15.724	0.700	0.794	18.00	12.795	0.711	0.834
Q12 A 7	21.44	19.209	0.260	0.866				

Red shading indicates α if item deleted > α before adjustment.

When the question item Q12 A 7 had been discarded, the Cronbach alpha for the dimension diversity increased from 0.836 to 0.866. This item also did not load strongly (0.281) on to the single factor, indicating both a possible inclusion of error variance in the organisational climate score and the dimension diversity when included.

Table 5.43: Cronbach alpha for the scale: Values

Reliability statistics

Cronbach alpha	No. of items
0.943	6

Reliability statistics

Cronbach alpha	No. of items
0.943	6

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q13 A 1	20.40	11.712	0.812	0.935	20.40	11.712	0.812	0.935
Q13 A 2	20.41	11.512	0.852	0.930	20.41	11.512	0.852	0.930
Q13 A 3	20.51	10.952	0.855	0.929	20.51	10.952	0.855	0.929
Q13 A 4	20.47	11.184	0.851	0.930	20.47	11.184	0.851	0.930
Q13 A 5	20.48	11.192	0.843	0.931	20.48	11.192	0.843	0.931
Q13 A 6	20.59	11.156	0.771	0.941	20.59	11.156	0.771	0.941

None of the items in the values dimension improved the Cronbach alpha value when discarded. These items also loaded stronger than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension of values.

Table 5.44: Cronbach alpha for the scale: Management

Reliability statistics

Cronbach alpha	No. of Items
0.898	5

Reliability statistics

Cronbach alpha	No. of items
0.898	5

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q14 A 1	12.43	14.578	0.652	0.897	12.43	14.578	0.652	0.897
Q14 A 2	12.59	13.716	0.791	0.867	12.59	13.716	0.791	0.867
Q14 A 3	12.93	13.328	0.768	0.872	12.93	13.328	0.768	0.872
Q14 A 4	13.00	13.426	0.815	0.861	13.00	13.426	0.815	0.861
Q14 A 5	12.88	14.324	0.720	0.882	12.88	14.324	0.720	0.882

None of the items in the management dimension improved the Cronbach alpha value when discarded. These items also loaded more strongly than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension of management.

Table 5.45: Cronbach alpha for the scale: Communications

Reliability statistics

Cronbach alpha	No. of items
0.812	7

Reliability statistics

Cronbach alpha	No. of items
0.903	6

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if Item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q15_A_1	18.61	19.402	0.705	0.758	15.42	20.228	0.738	0.885
Q15_A_2	18.58	19.722	0.681	0.763	15.39	20.659	0.701	0.890
Q15_A_3	19.05	19.677	0.708	0.759	15.86	20.617	0.729	0.886
Q15_A_4	18.93	19.707	0.707	0.759	15.73	20.619	0.731	0.886
Q15_A_5	19.12	19.261	0.717	0.756	15.92	19.985	0.762	0.881
Q15_A_6	18.77	19.672	0.717	0.757	15.58	20.599	0.739	0.885
Q15_A_7	18.78	28.887	-0.212	0.903				

Red shading indicates α if item deleted > α before adjustment.

When item Q15 A 7 had been discarded, the Cronbach alpha value for the dimension of communications increased from 0.812 to 0.903. This item also loaded weakly (-0.150) on to the single factor, indicating a possible source of error variance when included in both the overall organisational climate score and its dimension of communications. This item was therefore discarded.

Table 5.46: Cronbach alpha for the scale: Quality

Reliability statistics

Cronbach alpha	No. of Items
0.883	6

Cronbach alpha	No. of items
0.883	6

	Item-total statistics (before adjustment)				Item-total statistics (after adjustment)			
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q16 A 1	18.42	15.900	0.715	0.859	18.42	15.900	0.715	0.859
Q16 A 2	18.57	15.649	0.761	0.851	18.57	15.649	0.761	0.851
Q16 A 3	18.29	17.235	0.701	0.864	18.29	17.235	0.701	0.864
Q16 A 4	18.60	15.953	0.724	0.858	18.60	15.953	0.724	0.858
Q16 A 5	18.67	15.878	0.624	0.877	18.67	15.878	0.624	0.877
Q16 A 6	18.54	16.192	0.667	0.867	18.54	16.192	0.667	0.867

None of the items in the quality dimension improved Cronbach's alpha when discarded. These items also loaded more strongly than 0.30 on to the single factor, indicating strong communality between the items in the measurement of both organisational climate and its dimension of quality.

Table 5.47: Cronbach alpha for the overall HPCQ v1.3 scale

Reliability statistics

Cronbach alpha	No. of items
0.978	89

Item-total statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach alpha if item deleted
Q1 A 1	308.90	2757.667	0.609	0.978
Q1 A 2	309.06	2754.307	0.652	0.978
Q1 A 3	309.27	2758.320	0.653	0.978
Q1 A 4	309.05	2762.032	0.567	0.978
Q1 A 5	309.12	2753.131	0.649	0.978
Q2 A 2	309.10	2763.569	0.534	0.978
Q2 A 3	309.09	2762.606	0.594	0.978
Q2 A 4	309.17	2763.473	0.579	0.978
Q2 A 5	308.90	2774.191	0.530	0.978
Q2 A 6	309.44	2772.882	0.495	0.978
Q3 A 1	308.56	2767.353	0.616	0.978
Q3 A 2	308.72	2767.593	0.522	0.978
Q3 A 3	308.65	2765.220	0.589	0.978
Q3 A 4	308.95	2756.026	0.625	0.978
Q3 A 5	308.54	2764.119	0.627	0.978
Q3 A 6	308.69	2757.511	0.670	0.978
Q3 A 7	308.60	2768.279	0.571	0.978
Q3 A 8	308.52	2770.066	0.520	0.978
Q4 A 2	308.81	2779.457	0.485	0.978
Q4 A 3	308.61	2774.659	0.561	0.978
Q4 A 4	308.81	2773.194	0.548	0.978
Q4 A 5	308.65	2773.542	0.547	0.978
Q5 A 1	308.47	2771.668	0.537	0.978
Q5 A 2	308.52	2775.655	0.492	0.978
Q5 A 3	308.88	2759.166	0.603	0.978
Q5 A 4	309.34	2760.975	0.580	0.978
Q6 A 1	308.19	2786.473	0.516	0.978
Q6 A 2	308.41	2781.129	0.522	0.978
Q6 A 3	308.86	2776.468	0.507	0.978
Q6 A 4	308.81	2788.399	0.438	0.978

Q6 A 5	308.45	2782.871	0.538	0.978
Q7 A 1	308.92	2757.704	0.637	0.978
Q7 A 2	308.58	2768.350	0.643	0.978
Q7 A 3	308.26	2784.859	0.569	0.978
Q7 A 4	308.30	2788.259	0.504	0.978
Q7 A 5	308.32	2779.738	0.613	0.978
Q7 A 6	308.14	2792.376	0.472	0.978
Q8 A 1	308.84	2777.793	0.542	0.978
Q8 A 2	308.89	2764.901	0.636	0.978
Q8 A 3	309.08	2764.270	0.653	0.978
Q8 A 4	309.39	2775.427	0.581	0.978
Q8 A 5	308.91	2781.259	0.486	0.978
Q9 A 1	308.84	2769.106	0.610	0.978
Q9 A 2	308.82	2764.493	0.624	0.978
Q9 A 3	308.96	2764.375	0.667	0.978
Q9 A 4	308.76	2769.305	0.648	0.978
Q9 A 5	308.66	2769.661	0.632	0.978
Q9 A 6	308.63	2768.544	0.634	0.978
Q10 A 1	308.06	2797.032	0.492	0.978
Q10 A 2	308.61	2783.986	0.487	0.978
Q10 A 3	308.37	2789.261	0.498	0.978
Q10 A 4	308.72	2782.681	0.491	0.978
Q10 A 5	308.83	2770.472	0.582	0.978
Q11 A 1	308.59	2772.989	0.546	0.978
Q11 A 2	308.58	2778.529	0.530	0.978
Q11 A 3	308.96	2758.831	0.610	0.978
Q11 A 4	308.67	2774.403	0.581	0.978
Q11 A 5	309.06	2772.083	0.567	0.978
Q11 A 6	309.24	2770.124	0.542	0.978
Q11 A 7	308.97	2778.368	0.522	0.978
Q12 A 1	308.88	2764.263	0.688	0.978
Q12 A 2	308.42	2784.784	0.504	0.978
Q12 A 3	308.60	2778.845	0.564	0.978
Q12 A 4	308.64	2792.460	0.449	0.978
Q12 A 5	308.75	2775.269	0.587	0.978
Q12 A 6	308.82	2759.884	0.669	0.978
Q13 A 1	308.08	2798.168	0.487	0.978
Q13 A 2	308.10	2795.509	0.518	0.978
Q13 A 3	308.20	2783.408	0.603	0.978
Q13 A 4	308.15	2792.139	0.522	0.978
Q13 A 5	308.17	2788.985	0.558	0.978
Q13 A 6	308.27	2781.237	0.606	0.978
Q14 A 1	308.73	2762.051	0.626	0.978

Q14 A 2	308.89	2756.518	0.683	0.978
Q14 A 3	309.23	2756.285	0.633	0.978
Q14 A 4	309.30	2751.572	0.713	0.978
Q14 A 5	309.18	2758.997	0.675	0.978
Q15 A 1	308.90	2765.205	0.579	0.978
Q15 A 2	308.87	2769.277	0.553	0.978
Q15 A 3	309.34	2771.674	0.545	0.978
Q15 A 4	309.21	2769.113	0.569	0.978
Q15 A 5	309.40	2761.795	0.606	0.978
Q15 A 6	309.05	2756.684	0.685	0.978
Q16 A 1	308.46	2772.649	0.570	0.978
Q16 A 2	308.61	2768.418	0.616	0.978
Q16 A 3	308.34	2781.367	0.604	0.978
Q16 A 4	308.64	2763.207	0.671	0.978
Q16 A 5	308.71	2767.848	0.555	0.978
Q16 A 6	308.58	2774.239	0.551	0.978

Green shading indicates overall α in the acceptable range.

The overall internal consistency reliability of the HPCQ v1.3 scale was 0.978 when the items indicated in red in the above sections were discarded. The reduction in possible error variance, together with the fact that the instrument consists of quite a number of items and has a long history of psychometric improvements, explains why the Cronbach alpha value was so high.

From the above it can safely be said that the internal consistency reliability of the HPCQ v1.3 is high. The focus will now shift to the validity of the factorial design of the instrument.

Table 5.48: Pre-tests for exploratory factor analysis of HPCQ v1.3

Kaiser-Meyer-Olkin measure of sampling adequacy		0.975
Bartlett's test of sphericity	Approx. chi-square	105632.416
	Df	3916
	P	0.000

The KMO measure indicates that the sample was excellent for factor analytical procedures (KMO = 0.975). The Bartlett's test (p = 0.000) indicates that the data was not a correlation matrix and was indeed appropriate for factor analysis.

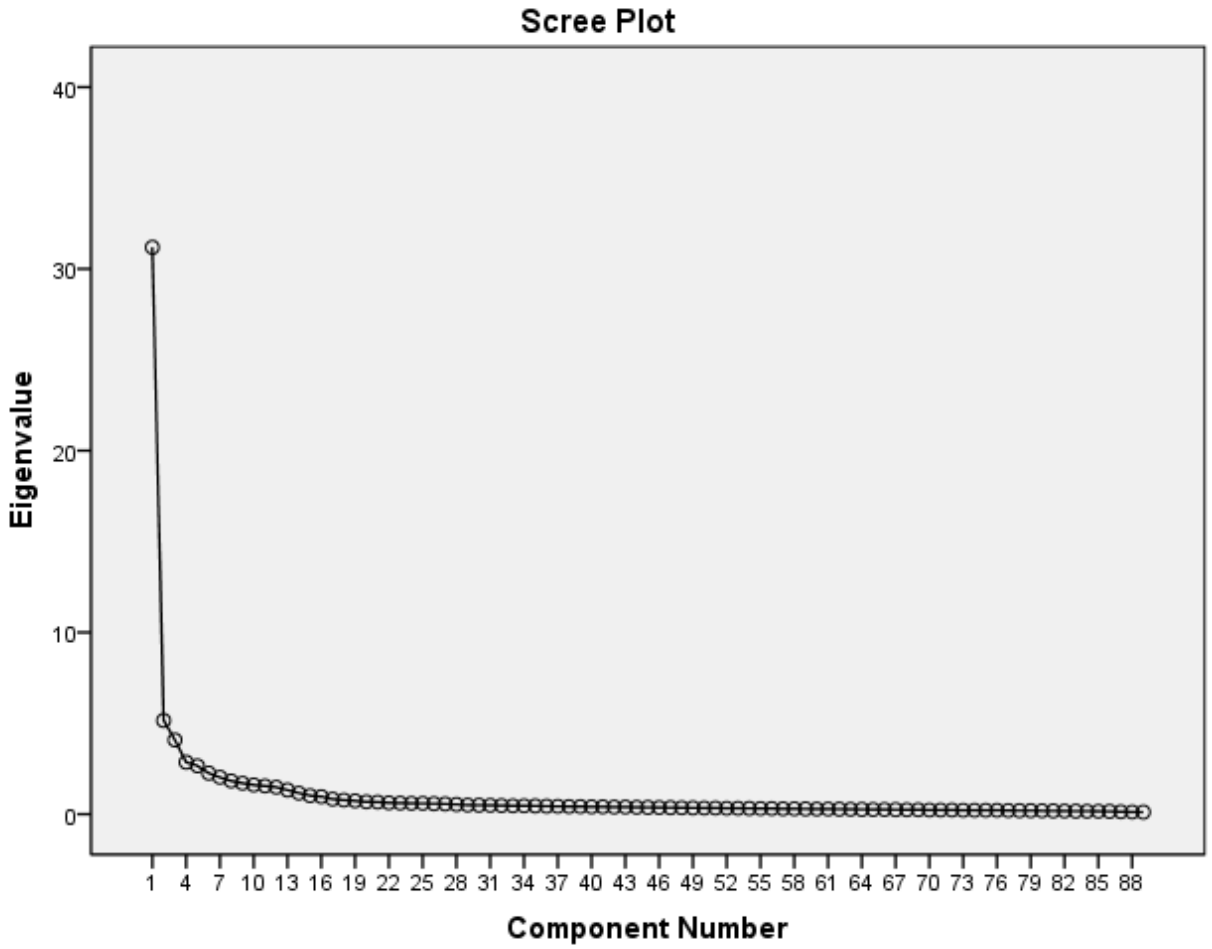


Figure 5.12: Scree plot for the HPCQ v1.3

A close inspection of the scree plot suggests the 15 factors that needed to be extracted. Because the instrument was designed to measure 16 distinct dimensions, 16 were extracted.

Table 5.49: Sixteen-factor promax rotated principal components analysis of the HPCQ v1.3

	Component															
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Q1 A 1								0.931								
Q1 A 2								0.922								
Q1 A 3								0.914								
Q1 A 4	0.132							0.781								
Q1 A 5								0.832								
Q2 A 2							0.921									
Q2 A 3							0.890									
Q2 A 4							0.934									
Q2 A 5							0.880									
Q2 A 6				0.103	-0.124	0.136	0.542									0.165
Q3 A 1	0.731															
Q3 A 2	0.946															
Q3 A 3	0.916															
Q3 A 4	0.776						0.119									
Q3 A 5	0.895															
Q3 A 6	0.801															
Q3 A 7	0.587								0.354							
Q3 A 8	0.876							-0.103			0.108					
Q4 A 2									0.820							
Q4 A 3									0.889							
Q4 A 4									0.767							
Q4 A 5									0.865							
Q5 A 1												0.957			-0.108	
Q5 A 2												1.022				

Q5 A 3					-0.101							0.810					
Q5 A 4						0.125					0.104	0.645	0.131	-0.136			
Q6 A 1						0.683			0.147				-0.112	0.120	-0.106		
Q6 A 2						0.915											
Q6 A 3						0.868								-0.104	0.129		
Q6 A 4				0.136		0.765											
Q6 A 5						0.869											
Q7 A 1				0.113								0.406		0.321	0.151		
Q7 A 2								0.102	0.299			0.137		0.389	0.158		
Q7 A 3														0.866			
Q7 A 4														0.966			
Q7 A 5	0.172													0.733			
Q7 A 6		0.213												0.577			
Q8 A 1									0.373			-0.180	0.538				
Q8 A 2								0.121					0.778				
Q8 A 3													0.808				
Q8 A 4													0.855				
Q8 A 5				-0.145					-0.102	0.139			0.747	0.130			
Q9 A 1					0.778												
Q9 A 2					0.763								-0.106		0.133		
Q9 A 3					0.752								0.151				
Q9 A 4					0.782				-0.140								
Q9 A 5					0.837					0.112							
Q9 A 6					0.817												
Q10 A 1		0.508											-0.106	0.198		0.350	
Q10 A 2																0.794	
Q10 A 3		0.380														0.625	
Q10 A 4																0.783	
Q10 A 5					0.264								0.183			0.538	

Q11 A 1			0.792													
Q11 A 2			0.810					0.103	-0.104					0.137	-0.136	
Q11 A 3			0.786												0.113	
Q11 A 4			0.861													
Q11 A 5			0.830													
Q11 A 6			0.769											-0.102	0.175	0.103
Q11 A 7			0.796													
Q12 A 1	-0.105		0.134	0.115				0.111			0.411	0.109				
Q12 A 2	0.171						-0.101				0.725		-0.142	0.156		
Q12 A 3										0.129	0.814					
Q12 A 4	-0.126										0.847					
Q12 A 5											0.880					
Q12 A 6								0.107			0.613					
Q13 A 1		0.885														0.112
Q13 A 2		0.942														
Q13 A 3		0.861														
Q13 A 4		0.945														
Q13 A 5		0.888														
Q13 A 6		0.790														-0.107
Q14 A 1					0.192			0.151	0.117				-0.110		0.563	-0.144
Q14 A 2					0.104					0.104					0.830	
Q14 A 3															0.977	
Q14 A 4															0.863	
Q14 A 5															0.791	
Q15 A 1				0.873												
Q15 A 2				0.877											-0.119	
Q15 A 3				0.888												
Q15 A 4				0.847												
Q15 A 5				0.793												

Q15 A 6				0.654	0.127											
Q16 A 1					-0.112	0.135				0.797						
Q16 A 2									-0.113	0.824						
Q16 A 3		0.154								0.712				0.118		
Q16 A 4					0.139					0.622					0.296	
Q16 A 5									0.153	0.704			0.141			
Q16 A 6									0.122	0.739						

Green shading indicates items loaded on to the intended factor.

Red shading indicates that items loaded on to other than the intended factor.

The pattern matrix of the 16-factor promax rotated principal components analysis is provided in the table above. The same methodology of analysis and rotation matrix was also used during the development and subsequent research and improvement of the HPCQ model.

All values smaller than 0.10 were supressed in order to provide only the most meaningful information. From the pattern matrix it is clear that the items loaded strongly on to the factors where they were intended to. These item loadings are shaded in green on the above matrix. Significant cross-loadings on to factors that were not intended are indicated in red. Hardly any items loaded on to factors where they were unwanted and because their contribution to the desired factors was needed, they were retained.

The fact that the question items loaded so neatly on to the desired factors can be attributed to the instrument having experienced a number of unpublished validations, and improvements, as well as the fact that conservative rules were followed in the preceding paragraphs to remove possible error variance from the HPCQ model.

Interestingly, when the SPSS suggested 15 factors should be extracted, the dimensions of mission and vision and those of values overlapped. From an inspection of the relevant factors and question items in the above pattern matrix there appeared to be enough support for a differentiation between these factors.

From the theoretical model it appears that the organisational climate dimensions could be clustered into second-order dimensions. In order to add to the richness of this research, the first-order climate scores were calculated and subjected to principle components analysis to unravel a second-order dimensional structure of the HPCQ v1.3 and to see if there was any alignment with what the underlying theory predicted.

Table 5.50: Pre-tests for exploratory factor analysis of the second-order factor structure of the HPCQ v1.3

Kaiser-Meyer-Olkin measure of sampling adequacy		0.950
Bartlett's test of sphericity	Approx. chi-square	14181.774
	Df	120
	P	0.000

The KMO measure indicates that the sample is extremely suitable for factor analytical procedures (KMO = 0.950). Bartlett's test (p = 0.000) indicated that the data was not a correlation matrix and appropriate for factor analysis.

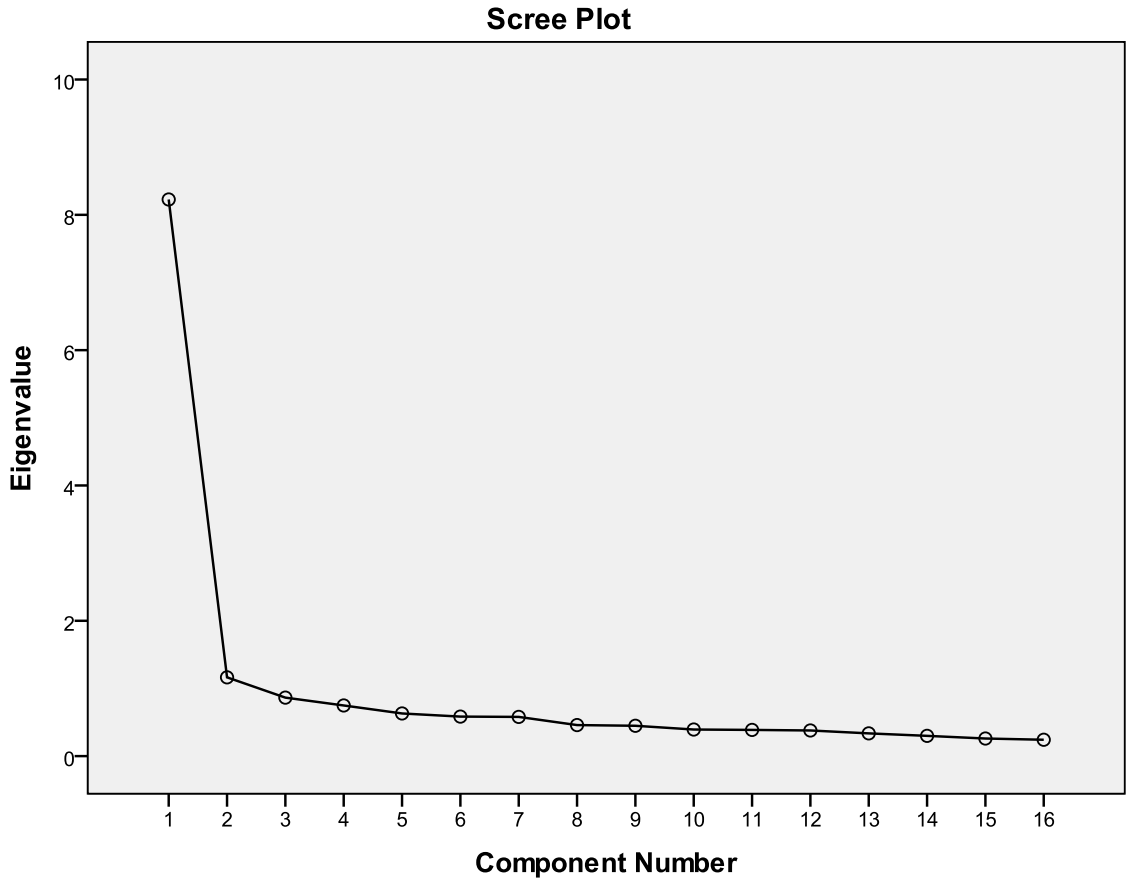


Figure 5.13: Scree plot for the second-order factor structure of the HPCQ v1.3

A close inspection of the scree plot suggests that two factors could be extracted, but that the three-factor solution was the most interpretable. The three-factor solution will therefore be discussed.

Table 5.51: Three-factor promax rotated principal components analysis of the second-order factor structure of the HPCQ v1.3

Pattern matrix

	Component		
	1	2	3
Empowerment	0.569	0.437	-0.199
Training	0.460	0.344	-0.068
Satisfaction	0.035	0.911	-0.137
Teamwork	0.459	0.383	-0.126
Retention	-0.010	0.594	0.240
Client service	0.421	-0.244	0.586
Individual	-0.103	0.680	0.405
Change	0.400	0.308	0.188
Goals	0.580	0.186	0.143
Mission and vision	0.048	0.021	0.811
Diversity	0.610	0.094	0.056
Creativity	0.291	0.440	0.176
Values	-0.178	0.166	0.887
Management	0.804	0.178	-0.111
Communication	0.867	-0.117	0.044
Quality	0.690	-0.161	0.358

Green shading indicates that the item loaded on to the primary factor.

Red shading indicates that the item loaded onto the secondary factor.

The three-factor promax rotated principal components analysis grouped the first-order factors (climate dimensions) together in a meaningful manner. The three factors (second-order dimensions) that emerged could be labelled as follows:

- **Efficiency** (similar to the ***HR systems*** of the competing values theory) includes aspects such as empowerment, training, teamwork, change, goals, diversity, management, communication and quality.
- **Care** (similar to the ***open systems*** of the competing values theory) includes aspects such as satisfaction, retention, individual and creativity.

- **Strategy** (similar to the ***Internal processes*** of the competing values theory) includes aspects such as client service, mission and vision and values.

Some items (like change) loaded significantly (0.400) on to the efficiency factor, but also significantly (0.308) on to the care factor. These significant (< 0.30) secondary loadings were indicated in the pattern matrix in table 5.51 in red and are accounted for when a model is specified with a higher-order dimensional structure in paragraphs to follow.

With the first- and second-order factors of the HPCQ v1.3 established using exploratory factor analysis, some proof pertaining to the face validity of the instrument is presented. Confirmatory factor analysis will be discussed next in order to test this model.

5.7.2 Confirmatory factor analysis of the HPCQ v1.3

Below is the path diagram of the confirmatory factor analysis of the HPCQ v1.3 model. The first- and second-order dimensions were discussed in the preceding paragraphs.

Next the factor structure of the HPCQ v1.3 is tested using confirmatory factor analysis to provide a more conclusive view on the validity of the instrument.

The path diagrams and fit indices of the confirmatory factor analysis will be explained below. Modification indices are also consulted and discussed in an effort to possibly improve the model.

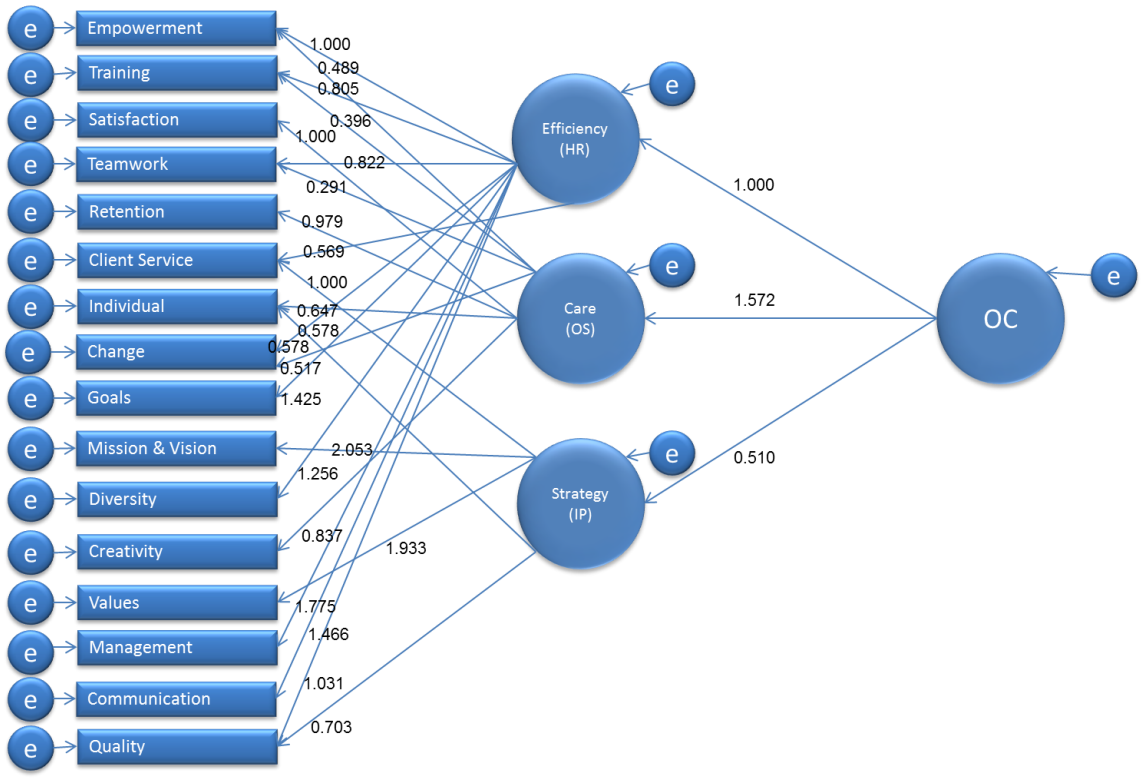


Figure 5.14: Confirmatory factor analysis of the HPCQ v1.3

The path diagram (expectedly) showed stronger regression weights for the first-order dimensions which were indicated with primary factor loadings on to the second-order factor structure than the secondary factor loadings (indicated in red in table 5.51). The second-order dimensions of care (OS) had the strongest regression to overall organisational climate, followed by efficiency (HR) and strategy (IP).

Table 5.52: Fit indices for the confirmatory factor analysis of the HPCQ v1.3

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.926	0.893	0.931	0.912	0.939	0.921	0.938	0.076

All the fit indices, except the AGFI, reached the 0.90 critical value and the RMSEA fell within the range of 0.05 to 0.08, indicating some support for the model.

In the next paragraph, the researcher investigates possible modifications to the HPCQ v1.3 model to improve the confirmatory factor analysis indices. Were possible error variance was reduced in the SEM for emotional intelligence as a determinant of organisational climate.

Table 5.53: Modification indices for improvement of the confirmatory factor analysis of the HPCQ v1.3

			Modification index	Estimated regression change
Quality	<---	Communication	5.524	0.040
Quality	<---	Individual	6.786	-0.057
Quality	<---	Client_Service	27.008	0.097
Quality	<---	Satisfaction	20.056	-0.074
Quality	<---	Training	11.120	-0.053
Communication	<---	Quality	5.465	0.053
Communication	<---	Client_Service	12.185	0.078
Communication	<---	Teamwork	14.823	-0.079
Communication	<---	Satisfaction	5.049	-0.044
Management	<---	Strategy__IP	15.341	-0.230
Management	<---	Values	11.322	-0.080
Management	<---	Mission_Vision	16.442	-0.089
Management	<---	Change	8.528	-0.060
Management	<---	Individual	4.349	-0.048
Management	<---	Client_Service	22.964	-0.094
Management	<---	Teamwork	4.708	0.039
Management	<---	Empowerment	12.901	0.057
Values	<---	Efficiency__HR	6.054	-0.072
Values	<---	Communication	7.173	-0.037
Values	<---	Management	5.372	-0.031
Values	<---	Goals	4.148	-0.031
Values	<---	Change	10.968	-0.053
Values	<---	Individual	6.238	0.045
Values	<---	Teamwork	4.650	-0.031
Values	<---	Training	6.384	-0.033
Values	<---	Empowerment	5.364	-0.029
Creativity	<---	Strategy__IP	9.623	0.166
Creativity	<---	Efficiency__HR	5.481	0.079
Creativity	<---	Quality	22.071	0.085
Creativity	<---	Communication	7.072	0.043
Creativity	<---	Values	8.525	0.063
Creativity	<---	Diversity	4.310	0.035
Creativity	<---	Mission_Vision	9.733	0.062
Creativity	<---	Goals	4.357	0.037
Creativity	<---	Retention	14.648	-0.057

			Modification index	Estimated regression change
Creativity	<---	Empowerment	12.138	0.050
Diversity	<---	Values	4.179	0.058
Diversity	<---	Mission_Vision	4.304	0.054
Diversity	<---	Retention	17.006	0.081
Diversity	<---	Empowerment	4.351	-0.040
Mission_Vision	<---	Efficiency__HR	10.318	0.104
Mission_Vision	<---	Communication	7.154	0.041
Mission_Vision	<---	Diversity	9.311	0.049
Mission_Vision	<---	Goals	30.720	0.095
Mission_Vision	<---	Change	15.756	0.070
Mission_Vision	<---	Teamwork	6.756	0.041
Mission_Vision	<---	Training	23.082	0.069
Goals	<---	Strategy__IP	22.247	0.264
Goals	<---	Quality	4.589	0.041
Goals	<---	Communication	4.519	-0.036
Goals	<---	Values	12.659	0.081
Goals	<---	Diversity	4.123	-0.036
Goals	<---	Mission_Vision	38.254	0.129
Goals	<---	Individual	8.706	0.065
Goals	<---	Retention	4.593	-0.033
Goals	<---	Satisfaction	5.657	0.039
Goals	<---	Training	5.062	0.035
Change	<---	Mission_Vision	9.976	0.067
Change	<---	Client_Service	23.146	0.091
Change	<---	Retention	4.521	0.034
Change	<---	Satisfaction	6.581	-0.043
Individual	<---	Efficiency__HR	4.381	-0.061
Individual	<---	Quality	8.483	-0.046
Individual	<---	Communication	10.428	-0.045
Individual	<---	Management	6.173	-0.033
Individual	<---	Values	5.202	0.043
Individual	<---	Retention	9.443	0.040
Individual	<---	Training	4.096	-0.026
Client_Service	<---	Quality	16.737	0.095
Client_Service	<---	Communication	7.678	0.057
Client_Service	<---	Management	4.368	-0.041
Client_Service	<---	Change	12.320	0.084
Client_Service	<---	Retention	8.927	0.057
Client_Service	<---	Teamwork	4.021	-0.042
Client_Service	<---	Satisfaction	8.564	-0.059
Retention	<---	Creativity	10.301	-0.093
Retention	<---	Diversity	12.034	0.085
Retention	<---	Goals	6.270	-0.066
Retention	<---	Individual	6.946	0.081
Retention	<---	Client_Service	13.093	0.094
Retention	<---	Teamwork	5.196	-0.055

			Modification index	Estimated regression change
Retention	<---	Empowerment	7.176	-0.057
Teamwork	<---	Communication	9.658	-0.069
Teamwork	<---	Client_Service	5.137	-0.055
Teamwork	<---	Retention	4.258	-0.042
Teamwork	<---	Satisfaction	6.172	0.054
Satisfaction	<---	Strategy__IP	12.643	-0.252
Satisfaction	<---	Quality	17.718	-0.101
Satisfaction	<---	Communication	4.773	-0.047
Satisfaction	<---	Values	4.543	-0.061
Satisfaction	<---	Mission_Vision	20.965	-0.121
Satisfaction	<---	Change	7.324	-0.067
Satisfaction	<---	Client_Service	24.125	-0.116
Satisfaction	<---	Teamwork	7.671	0.060
Satisfaction	<---	Empowerment	4.723	0.042
Training	<---	Quality	5.097	-0.061
Training	<---	Mission_Vision	4.654	0.064
Empowerment	<---	Strategy__IP	16.728	-0.295
Empowerment	<---	Management	7.350	0.056
Empowerment	<---	Values	15.145	-0.114
Empowerment	<---	Creativity	5.198	0.061
Empowerment	<---	Diversity	7.841	-0.063
Empowerment	<---	Mission_Vision	17.884	-0.114
Empowerment	<---	Client_Service	7.960	-0.068
Empowerment	<---	Retention	8.535	-0.059
Empowerment	<---	Satisfaction	5.781	0.051

Yellow shading indicates the two biggest modification indices.

The modification indices seem to suggest a link from vision and mission to and from goals. The estimated regression changes were small, namely 0.129 and 0.095 respectively. The link between these dimensions seems logical because one would expect the organisation's long-term direction (its vision and mission) and its shorter-term direction (goals) to be linked and possibly influence each other, albeit weakly. Interestingly, there was no overlap between the two factors indicated by cross-factor loadings in the exploratory principal components analysis presented in table 5.49. The factors suggested to possibly overlap were values and vision and mission and the modification indices above did not suggest any improvement in the RMSEA when these were linked.

Below the HPCQ v1.3 is specified to link the dimensions of goals and mission and vision to test the model using confirmatory factor analysis.

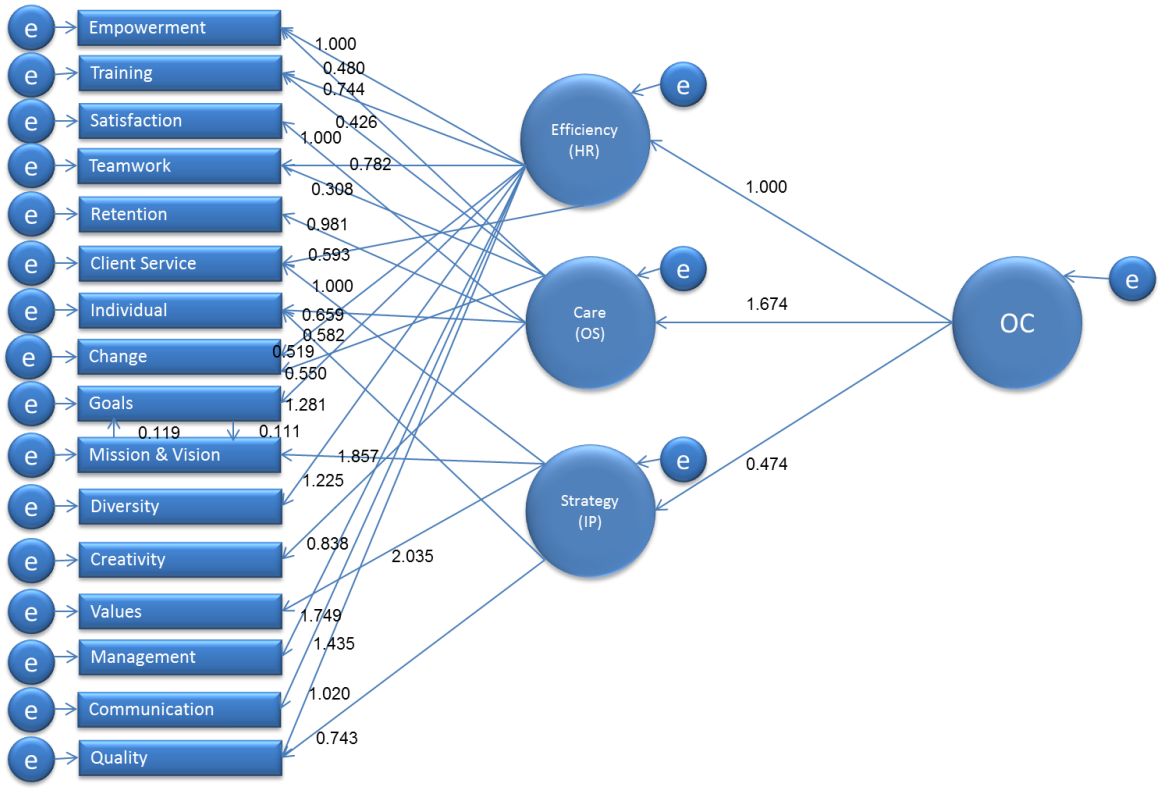


Figure 5.15: Confirmatory factor analysis of the improved HPCQ v1.3

Goals and mission and vision are linked in the above path diagram of the confirmatory factor analysis of the improved HPCQ v1.3 model. The same patterns in the regression weights from figure 5.14 are visible with weak effects between goals and mission and vision. The afore-mentioned effects that were allowed to improve the model fit, did not change the model's prediction ability materially.

Table 5.54: Fit indices for the confirmatory factor analysis of the improved HPCQ v1.3

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.931	0.898	0.937	0.918	0.945	0.928	0.945	0.073

The modifications led to increased support for the model with the lowest fit index (AGFI) now at 0.898 and the RMSEA lower at 0.073 and provide at least a moderate confirmation for the HPCQ v1.3 factor structure.

5.7.3 Organisational climate and work output

A considerable amount of literature has focused on the link between organisational climate and organisational outputs (see table 3.8). The next sections, will deal with the link between organisational climate (as measured with the HPCQ v1.3) and work output.

This relationship is tested below using SEM and is further explored with correlations and linear regression to determine the nature of the relationship between (trait) emotional intelligence and work outputs.

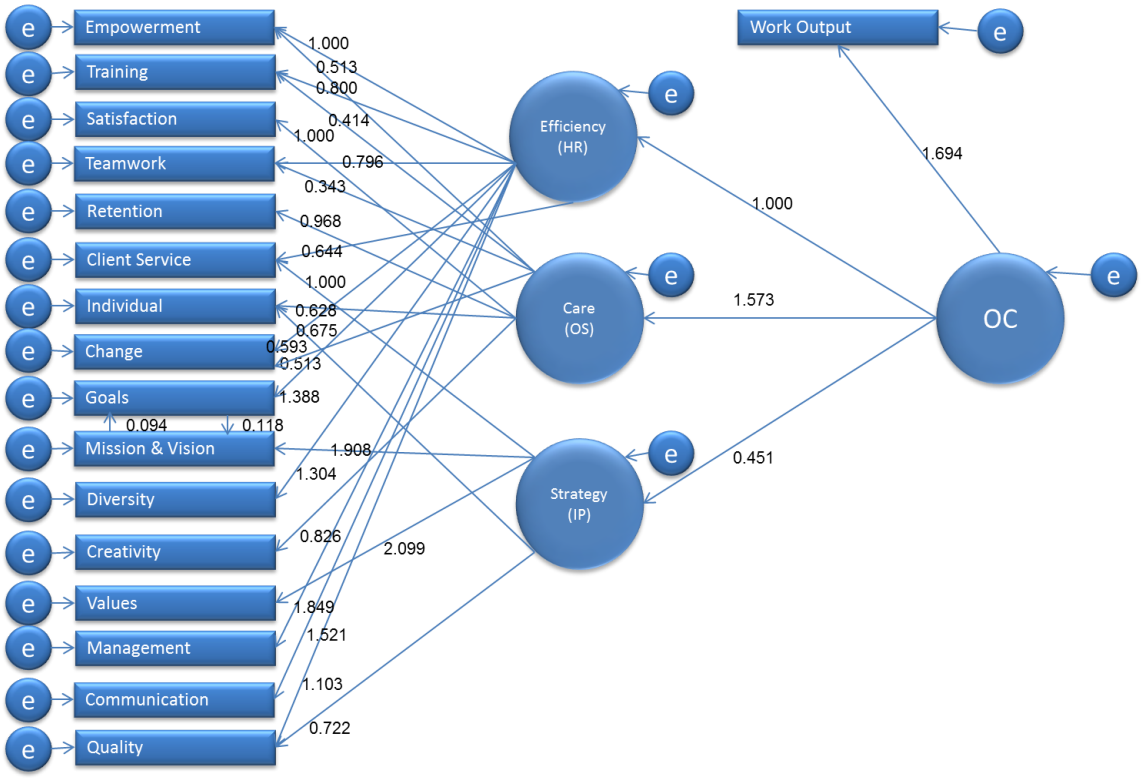


Figure 5.16: Path diagram for the organisational climate-work output model

The organisational climate (as measured with the HPCQ v1.3) model, with first- and second-order dimensions indicated, is linked in the above path diagram with work output.The same patterns in the regression weights from figures 5.14 and 5.15 emerged, but a strong regression was evident betweeen organisational climate and work output.

Table 5.55: Fit indices for the organisational climate-work output model

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.926	0.894	0.932	0.914	0.940	0.924	0.940	0.072

Most of the fit indices decreased slightly after the work output component had been added to the HPCQ v1.3 model. This is to be expected because the model increased in size and this left more room for error variance to be included. Surprisingly, however, is the fact that the RMSEA of 0.073 that was obtained

during the confirmatory factor analysis of the HPCQ v1.3 (table 5.54) reduced further to 0.072 with the inclusion of the work output component.

The above SEM provides support for the link between organisational climate (as measured by the HPCQ v 1.3) and work output. This is congruent with the linkage research findings of the literature research documented earlier. The nature of the relationship between emotional intelligence and work output will be explored further using correlations and regression analysis.

Table 5.56: Correlations between organisational climate and work output

		Empowerment	Training	Satisfaction	Teamwork	Retention	Client service	Individual	Change	Goals	Mission & vision	Diversity	Creativity	Values	Management	Communication	Quality	Efficiency (HR)	Care (OS)	Strategy (IP)	Overall climate
Work output	Spearman's rho	0.448	0.383	0.449	0.543	0.411	0.345	0.439	0.457	0.493	0.381	0.405	0.467	0.342	0.530	0.410	0.479	0.604	0.533	0.425	0.614
	p value (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268

* All correlations are significant at the 0.01 level (2-tailed).

Because the data was not normally distributed, Spearman's rho was calculated as a measure of association. The correlations ranged from 0.342 to 0.543, with teamwork (r = 0.342) and management (r = 0.530) as the strongest correlations between the first-order dimensions and work output. The second- order dimensions of organisational climate were higher and ranged from 0.425 and 0.602. Interestingly, the efficiency (HR) dimension correlated the highest with work output. The overall composite organisational climate (as measured using the HPCQ v1.3) correlated at 0.614 with work output, indicating a moderate correlation.

Table 5.57: Regression between organisational climate and work output

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.629	0.396	0.395	0.75514

F = 829.638; *p* = 0.000
Dependent variable: Work output
Predictor: HPCQ v1.3

When the overall organisational climate was used as a predictor and work output as the dependent variable, almost 40% of the total variance in work output was explained by organisational climate (as measured by the HPCQ v1.3). This finding resonates with the linkage research referred to in the literature research.

The next section will explore the interaction between organisational climate and biographical and demographic variables.

5.8 INTERPRETATION OF ORGANISATIONAL CLIMATE DATA BASED ON BIOGRAPHICAL AND DEMOGRAPHICAL VARIABLES

A similar procedure as with the emotional intelligence data was followed. The organisational climate scores were first tested for normal distribution to determine

whether parametric or non-parametric statistical procedures should be employed in the analysis of this data set. For this purpose the Kolmogorov-Smirnov test was used. The hypothesis and *p* – values are summarised in table 5.58 below.

Table 5.58: Test for normal distribution of organisational climate data

Null hypothesis	Test	*p*-value	Decision
The distribution of HPCQ v1.3 data is normal with a mean of 3.498 and a standard deviation of 0.60	One-sample Kolmogorov-Smirnov test	0.238	Retain the null hypothesis

Asymptotic significances are displayed. The significance level is 0.05.

Table 5.58 above indicates that the null hypothesis (normal distribution) of organisational climate scores was retained because the Kolmogorov-Smirnov *p*-value was not significant ($p = 0.238$). Parametric statistical procedures were therefore appropriate for the analysis of the overall organisational climate means across the different biographical and demographical variables.

5.8.1 Race

The first biographical or demographical category that was used to determine mean differences was race. Employees were classified according to the classes of white, coloured, Indian and black.

Table 5.59: One-way analysis of variance (ANOVA) for different race classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	Df	Mean square	f	p
Between groups	3.645	4	0.911	2.553	0.037
Within groups	549.706	1540	0.357		
Total	553.351	1544			

The ANOVA of the overall organisational climate scores across the different classes of race indicated significant differences (p = 0.037). Meaningful sub-climates on the basis of race could therefore be analysed in this organisation.

5.8.2 Gender

In this section, the mean differences of organisational climate scores between gender classes were analysed.

Table 5.60: One-way analysis of variance (ANOVA) for different gender classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	Df	Mean square	f	*p*
Between groups	1.879	2	0.939	2.626	0.073
Within groups	551.472	1542	0.358		
Total	553.351	1544			

Based on the ANOVA above, no significant differences between the sub-groups of male and female were detected (p = 0.073). No meaningful sub-climates on the basis of gender could therefore be assumed in this sample.

5.8.3 Position level

In this section, the mean differences of organisational climate scores between different position levels (grades) were investigated.

Table 5.61: One-way analysis of variance (ANOVA) for different position level classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	Df	Mean square	f	*p*
Between groups	23.456	10	2.346	6.790	0.000
Within groups	529.894	1534	0.345		
Total	553.351	1544			

The one-way ANOVA of the HPCQ v1.3 data indicated highly significant differences between the classes of position level (grade).

The post hoc Scheffé test (see annexure 7) indicates that there were significant differences ($p < 0.01$) between the grade 3a and grade 6, as well as the grade 3a and grade 7 employees only. One would have expected differences between the team members, team leaders and manager groups, but the data did not indicate this. Interestingly, when employees were categorised as team members, team leaders and managers, on the basis of their job titles, differences between the group managers and team leaders, and managers and team members did become evident.

5.8.4 Age

In this section, the mean differences of organisational climate scores between age classes are discussed.

Table 5.62: One-way analysis of variance (ANOVA) for different age classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	Df	Mean square	f	*p*
Between groups	5.964	5	1.193	3.353	0.005
Within groups	547.387	1539	0.356		
Total	553.351	1544			

Based on above ANOVA, significant differences between the sub-groups of age were detected (p = 0.005). Meaningful sub-climates on the basis of age could therefore be assumed for this sample.

5.8.5 Tenure

This section focuses on the mean differences of organisational climate scores between tenure classes.

Table 5.63: One way analysis of variance (ANOVA) for different tenure classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	Df	Mean square	f	p
Between groups	1.818	5	0.364	1.015	0.407
Within groups	551.533	1539	0.358		
Total	553.351	1544			

Based on the above ANOVA, no significant differences between the sub-groups of tenure were detected (p = 0.407). No meaningful sub-climates on the basis of tenure could therefore be assumed for this sample.

5.8.6 Geographical region

This section focuses on the mean differences of organisational climate scores between geographical region classes.

Table 5.64: One-way analysis of variance (ANOVA) for different geographical region classes of the HPCQ v1.3 overall score

HPCQ v1.3	Sum of squares	df	Mean square	f	*p*
Between groups	15.167	11	1.379	3.928	0.000
Within groups	538.184	1533	0.351		
Total	553.351	1544			

The one-way ANOVA of the HPCQ v1.3 data indicated significant differences between the classes of geographical region.

The post hoc Scheffe test (see annexure 8) indicated no significant differences between the climate scores.

5.9 SEM TESTING: EMOTIONAL INTELLIGENCE AS A DETERMINANT OF ORGANISATIONAL CLIMATE

In the preceding sections, the Work Output Questionnaire (section 5.3), the GEIS v1.3 (section 5.5) and the HPCQ v1.3 (section 5.7) were discussed in terms of validity and reliability and it was concluded that all three instruments yielded valid and reliable measurements.

In section 5.5.3 it was concluded that emotional intelligence fits into an SEM as a statistically significant predictor of work output, but that the effect is negligibly small. In section 5.7.3 it was concluded that organisational climate predicts work output strongly (almost 40% of the variance in work output was explained by organisational climate). The stronger influence in organisational climate on work

output seems to stem from the dimensions of teamwork and management within the higher-order dimension of efficiency (HR). From the above it appears that emotional intelligence does not directly influence work output, but does so through organisational climate. This hypothesis is tested below.

In the sections below, the work output, GEIS v1.3 and HPCQ v1.3 measurements are entered into an SEM represented by the path diagram in figure 5.17 below.

This made SEM testing possible, and revealed regression estimates between variables. Through the application of modification indices, the model could potentially be refined. The relationship between variables is lastly analysed with correlations to suggest the size of the effect between variables.

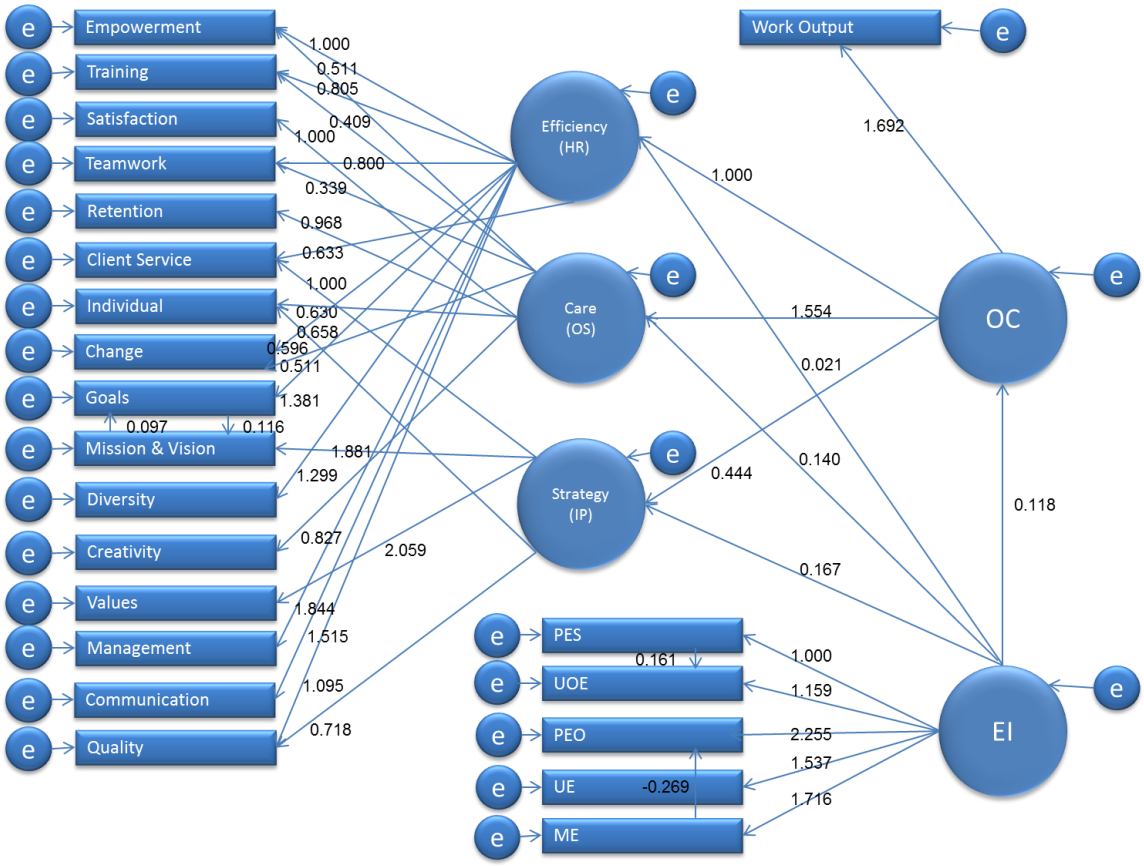


Figure 5.17: Path diagram for the model of emotional intelligence as a determinant of organisational climate

The same patterns between the variables were yielded as indicated in the SEM of emotional intelligence and work output, and organisational climate and work output. The focus here is on the relationship between emotional intelligence and organisational climate. The model yields poor (unstandardised) regression estimates between emotional intelligence and organisational climate (*b* = 0.118). The same trend was also evident in the regression estimates between emotional intelligence and efficiency (HR) (*b* = 0.021), care (OS) (*b* = 0.140) and strategy (IP) (*b* = 0.167). The model fit indices are summarised in table 5.65 below.

Table 5.65: Emotional intelligence as a determinant of organisational climate model fit indices

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.932	0.910	0.930	0.916	0.943	0.931	0.943	0.057

The above fit indices are all above the 0.90 cut-off point, indicating support for the model as indicated in the path diagram in figure 5.16. The RMSEA also falls within the 0.05 to 0.08 range, indicating statistically significant support for the model, despite the poor effect sizes between emotional intelligence and organisational climate.

In order to investigate if the model could be improved, the modification indices were inspected. This was done on the basis of table 5.66.

Table 5.66: Emotional intelligence as a determinant of organisational climate modification indices

			Modification index	Estimated regression change
ME	<---	Efficiency_HR	6.312	0.096
PEO	<---	O_Climate	6.128	-0.077
PEO	<---	Strategy_IP	4.129	-0.089
PEO	<---	Efficiency_HR	5.785	-0.066
PEO	<---	Mission_Vision	4.223	-0.032
PEO	<---	Goals	4.604	-0.030
PEO	<---	Care_OS	6.002	-0.044
PEO	<---	Management	6.313	-0.031
PEO	<---	Creativity	4.362	-0.033
PEO	<---	Change	11.653	-0.050
PEO	<---	Individual	6.512	-0.042
PEO	<---	Teamwork	4.513	-0.028
UOE	<---	O_Climate	8.779	0.114
UOE	<---	Efficiency_HR	8.352	0.098
UOE	<---	Goals	7.763	0.049
UOE	<---	Care_OS	8.669	0.066
UOE	<---	Quality	5.796	0.043
UOE	<---	Management	4.922	0.033
UOE	<---	Creativity	13.156	0.070
UOE	<---	Diversity	6.457	0.041
UOE	<---	Change	4.920	0.040

			Modification index	Estimated regression change
UOE	<---	Individual	6.112	0.051
UOE	<---	Client_Service	4.561	0.037
UOE	<---	Teamwork	6.157	0.040
UOE	<---	Training	5.121	0.033
Work output	<---	Individual	4.492	-0.066
Work output	<---	Teamwork	47.328	0.168
Quality	<---	Communication	5.179	0.038
Quality	<---	Individual	6.929	-0.058
Quality	<---	Client_Service	25.823	0.094
Quality	<---	Satisfaction	20.834	-0.075
Quality	<---	Training	10.449	-0.051
Communication	<---	ME	7.095	0.067
Communication	<---	Quality	5.547	0.054
Communication	<---	Client_Service	12.745	0.080
Communication	<---	Teamwork	16.372	-0.084
Communication	<---	Satisfaction	4.692	-0.043
Management	<---	Strategy_IP	12.490	-0.213
Management	<---	Mission_Vision	11.710	-0.075
Management	<---	PEO	4.890	-0.062
Management	<---	Values	8.282	-0.068
Management	<---	Change	8.423	-0.059
Management	<---	Client_Service	23.957	-0.095
Management	<---	Empowerment	12.593	0.056
Values	<---	Change	5.520	-0037
Values	<---	Individual	6.609	0.046
Values	<---	Client_Service	6.325	-0.038
Creativity	<---	Strategy_IP	16.950	0.227
Creativity	<---	Efficiency_HR	5.325	0.081
Creativity	<---	Mission_Vission	15.717	0.079
Creativity	<---	Goals	4.989	0.040
Creativity	<---	UE	8.571	0.063
Creativity	<---	UOE	7.376	0.063
Creativity	<---	Quality	24.226	0.089
Creativity	<---	Communication	8.041	0.046
Creativity	<---	Values	14.992	0.084
Creativity	<---	Diversity	4.685	0.036
Creativity	<---	Retention	13.186	-0.054
Creativity	<---	Empowerment	11.404	0.049
Diversity	<---	Strategy_IP	5.530	0.171
Diversity	<---	Mission_Vision	6.214	0.066
Diversity	<---	Values	5.636	0.068
Diversity	<---	Retention	17.564	0.082
Diversity	<---	Empowerment	4.034	-0.038
Change	<---	Strategy_IP	5.262	0.135
Change	<---	Mission_Vision	14.967	0.082
Change	<---	Individual	4.408	0.047

			Modification index	Estimated regression change
Change	<---	Client_Service	25.464	0.096
Change	<---	Retention	5.164	0.036
Change	<---	Satisfaction	6.687	-0.043
Individual	<---	PES	12.098	0.075
Individual	<---	Work output	8.722	-0.038
Individual	<---	Quality	8.297	-0.045
Individual	<---	Communication	8.416	-0.040
Individual	<---	Management	5.058	-0.030
Individual	<---	Retention	10.541	0.042
Individual	<---	Satisfaction	4.133	0.028
Client_Service	<---	EI	4.029	0.139
Client_Service	<---	PEO	4.445	0.069
Client_Service	<---	Quality	15.795	0.092
Client_Service	<---	Communication	7.424	0.056
Client_Service	<---	Management	4.958	-0.044
Client_Service	<---	Change	13.261	0.087
Client_Service	<---	Retention	9.099	0.058
Client_Service	<---	Teamwork	4.505	-0.045
Client_Service	<---	Satisfaction	8.520	-0.059
Retention	<---	Goals	5.761	-0.063
Retention	<---	Creativity	9.348	-0.089
Retention	<---	Diversity	12.383	0.086
Retention	<---	Change	4.354	0.057
Retention	<---	Individual	9.130	0.093
Retention	<---	Client_Service	15.054	0.101
Retention	<---	Teamwork	7.862	-0.068
Retention	<---	Empowerment	7.573	-0.059
Teamwork	<---	Work output	43.293	0.132
Teamwork	<---	Communication	10.932	-0.072
Teamwork	<---	Client_Service	6.005	-0.059
Teamwork	<---	Retention	6.749	-0.053
Satisfaction	<---	Strategy_IP	9.047	-0.218
Satisfaction	<---	Mission_Vision	17.068	-0.108
Satisfaction	<---	ME	4.226	-0.054
Satisfaction	<---	Quality	18.561	-0.103
Satisfaction	<---	Communication	5.377	-0.049
Satisfaction	<---	Change	8.149	-0.070
Satisfaction	<---	Client_Service	23.492	-0.113
Training	<---	Mission_Vision	6.834	0.078
Training	<---	Quality	4.477	-0.057
Empowerment	<---	Strategy_IP	13.975	-0.278
Empowerment	<---	Mission_Vision	13.595	-0.099
Empowerment	<---	UOE	4.372	-0.065
Empowerment	<---	Management	6.797	0.054
Empowerment	<---	Values	11.548	-0.099
Empowerment	<---	Creativity	5.040	0.060

			Modification index	Estimated regression change
Empowerment	<---	Diversity	7.679	-0.062
Empowerment	<---	Client_Service	7.225	-0.064
Empowerment	<---	Retention	9.242	-0.061
Empowerment	<---	Satisfaction	4.426	0.044

Green shading: Considered for improvement to model in figure 5.16.

Shading in yellow: Considered for improvement to model in figure 5.17.

The modification indices suggested a link from teamwork (one of the organisational climate dimensions) to work output and from work output to teamwork. Although this link was not indicated in the theoretical model of emotional intelligence as a determinant of organisational climate (as explained in section 3.14), the modifications were applied to the model in figure 5.18 below to see if it significantly improve.

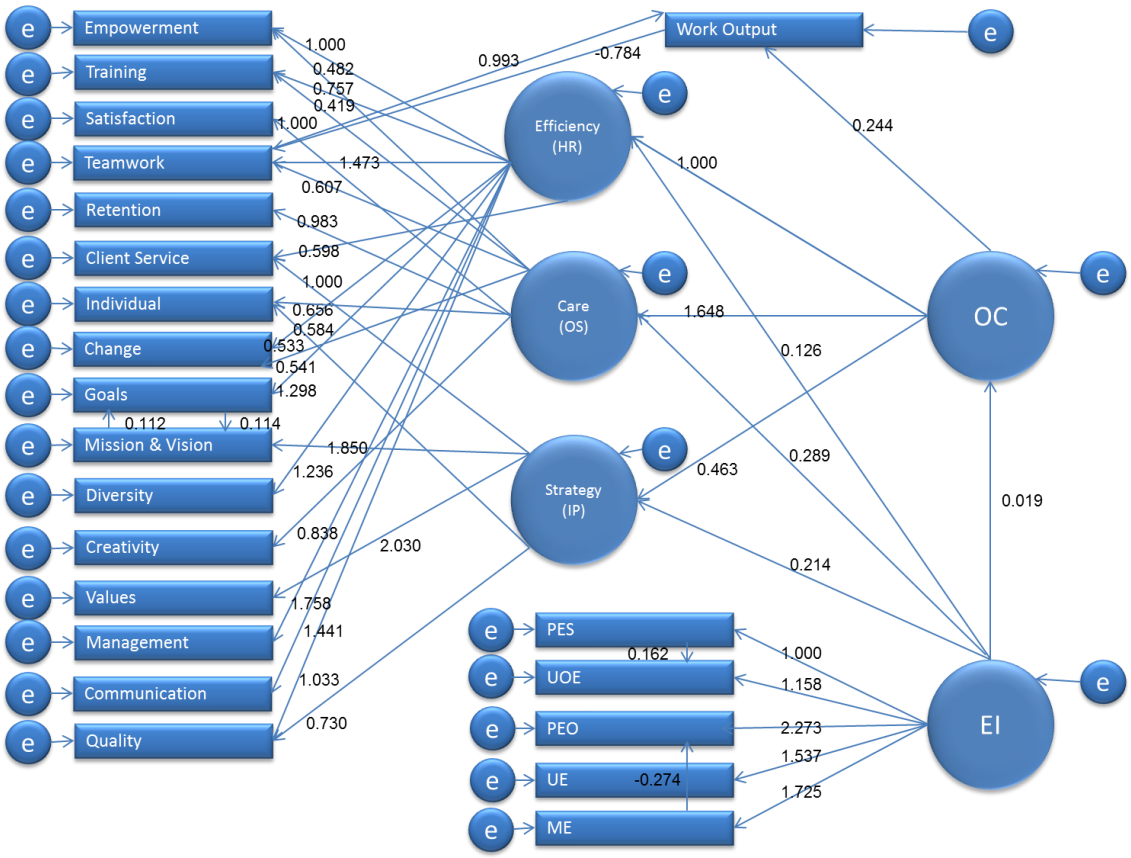


Figure 5.18: Path diagram of the improved model of emotional intelligence as a determinant of organisational climate

From the path diagram in figure 5.18, the same patterns between the variables were yielded as those indicated in figure 5.17. The focus here was on the relationship between emotional intelligence and organisational climate with the introduction of interaction between teamwork and work output. The model yielded a strong (unstandardised) regression estimate from teamwork to work output (*b* = 0.993) and a strong negative regression from work output to teamwork (*b* = -0.784).

The above model also indicated a much smaller regression between organisational climate and work output (*b* = 0.244) and a somewhat smaller regression estimate between emotional intelligence and organisational climate and higher regressions from emotional intelligence to the higher-order dimensions of organisational climate. None of the afore-mentioned indicated strong regressions.

Table 5.67 below summarises the model fit indices.

Table 5.67: Emotional intelligence-climate model fit indices

Model	**GFI**	**AGFI**	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**	**RMSEA**
Index	0.938	0.917	0.937	0.923	0.950	0.938	0.950	0.054

The difference between the fit indices indicated in table 5.65 (first SEM) and table 5.67 (improved SEM) was that all the fit indices improved slightly, while the RMSEA improved from 0.57 to 0.54.

Because the path diagram depicted in figure 5.18 is not aligned with the theoretical model, the modification indices in table 5.66 were consulted and those suggesting a link between emotional intelligence (or its dimensions) and organisational climate (or its dimensions) are explored. Thereafter the

correlations and linear regressions between key variables are discussed to draw a conclusion on the effect sizes.

In the next section, an attempt is made to improve the SEM of emotional intelligence as a determinant of organisational climate by including the variables highlighted in yellow in table 5.66.

Considering the modification indices, it makes sense that some dimensions of emotional intelligence have a direct impact on organisational climate. Hence the model was modified where modification indices suggested an impact on the chi square if a link from emotional intelligence to organisational climate dimensions. These links were as follows:

- from managing emotions to communication
- from perceiving emotions: other to management
- from understanding emotions to creativity
- from use of emotions to facilitate thought to creativity
- from perceiving emotions: self to individual
- from emotional intelligence (overall) to client service
- from perceiving emotions: other to client service
- from managing emotions to satisfaction
- from use of emotions to facilitate thought to empowerment

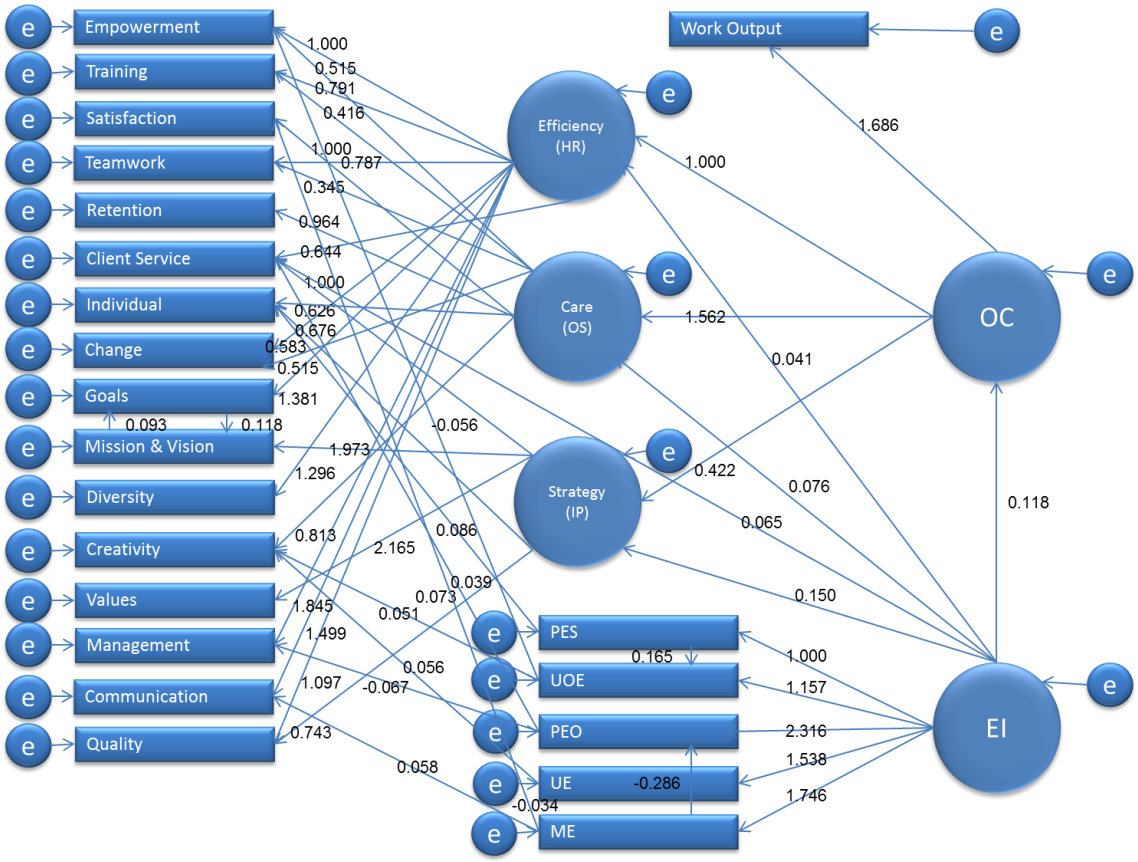


Figure 5.19: Path diagram for the final refined model of emotional intelligence as a determinant of organisational climate

The SEM depicted in figure 5.19 does not yield strong regression estimates between emotional intelligence (and its dimensions) and organisational climate (and its dimensions). The regression between organisational climate and work outputs is still strong.

Table 5.68: Emotional intelligence as a determinant of organisational climate model fit indices of the final model

Model	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
Index	0.935	0.910	0.934	0.916	0.946	0.932	0.946	0.057

The previous improved model fit indices of the SEM depicted in table 5.67 differ from the fit indices of the final model as presented above in table 5.68 insofar as all the fit indices decreased somewhat and the RMSEA increased from 0.053 (reported in table 5.65) back to 0.057. Although the previous model was better supported by the model testing, it could not be supported by the theory which is the case in the latter model. It also appears that the nine modifications introduced in the last model to allow more of emotional intelligence and its dimensions to influence the dimensions of organisational climate caused a negligible improvement to the SEM.

Although some statistical support was evident above for the model of emotional intelligence as a determinant of organisational climate, more clarity was needed on the effect size between variables. The interpretation below considers the SEM regression estimates and correlations to conclude on the integration model.

5.10 INTERPRETATION OF THE FINAL MODEL

The model in figure 5.19 is first interpreted by referring to the regression estimates in table 5.69 below.

Table 5.69: Regression estimates of the final model of emotional intelligence as a determinant of organisational climate

			Unstandardised regression estimate (A)	Standard error (B)	Critical ratio (A/B)	*p*
O_Climate	<---	EI	0.118	0.063	1.873	0.061
Efficiency_HR	<---	O_Climate	1.000			
Strategy_IP	<---	O_Climate	0.422	0.070	6.029	***
Strategy_IP	<---	EI	0.150	0.036	4.153	***
Efficiency_HR	<---	EI	0.041	0.054	0.753	0.451
Goals	<---	Efficiency_HR	1.381	0.165	8.367	***
Mission_Vision	<---	Strategy_IP	1.973	0.207	9.542	***
PES	<---	EI	1.000			
ME	<---	EI	1.746	0.134	13.061	***
Care_OS	<---	O_Climate	1.562	0.193	8.074	***
UOE	<---	EI	1.157	0.086	13.454	***

			Unstandardised regression estimate (A)	Standard error (B)	Critical ratio (A/B)	*p*
PEO	<---	EI	2.316	0.209	11.095	***
UE	<---	EI	1.538	0.098	15.690	***
Care_OS	<---	EI	0.076	0.086	0.884	0.377
UOE	<---	PES	0.165	0.031	5.343	***
PEO	<---	ME	-0.286	0.050	-5.693	***
Change	<---	Efficiency_HR	0.583	0.107	5.444	***
Retention	<---	Care_OS	0.964	0.043	22.579	***
Empowerment	<---	Care_OS	0.515	0.077	6.680	***
Training	<---	Care_OS	0.416	0.084	4.955	***
Teamwork	<---	Care_OS	0.345	0.076	4.516	***
Change	<---	Care_OS	0.515	0.062	8.266	***
Satisfaction	<---	Care_OS	1.000			
Individual	<---	Care_OS	0.626	0.032	19.365	***
Teamwork	<---	Efficiency_HR	0.787	0.140	5.613	***
Training	<---	Efficiency_HR	0.791	0.149	5.305	***
Empowerment	<---	Efficiency_HR	1.000			
Diversity	<---	Efficiency_HR	1.296	0.155	8.339	***
Management	<---	Efficiency_HR	1.845	0.215	8.571	***
Communication	<---	Efficiency_HR	1.499	0.177	8.456	***
Quality	<---	Efficiency_HR	1.097	0.134	8.156	***
Creativity	<---	Care_OS	0.813	0.032	25.532	***
Client_Service	<---	Efficiency_HR	0.644	0.095	6.762	***
Client_Service	<---	Strategy_IP	1.000			
Values	<---	Strategy_IP	2.165	0.233	9.295	***
Quality	<---	Strategy_IP	0.743	0.106	6.988	***
Individual	<---	Strategy_IP	0.676	0.096	7.056	***
Work_Output	<---	O_Climate	1.686	0.206	8.200	***
Communication	<---	ME	0.058	0.026	2.277	0.023
Management	<---	PEO	-0.067	0.031	-2.201	0.028
Creativity	<---	UE	0.056	0.024	2.363	0.018
Creativity	<---	UOE	0.051	0.026	1.976	0.048
Individual	<---	PES	0.086	0.022	3.850	***
Client_Service	<---	EI	0.065	0.190	0.343	0.732
Client_Service	<---	PEO	0.039	0.089	0.432	0.666
Satisfaction	<---	ME	-0.034	0.027	-1.234	0.217
Empowerment	<---	UOE	-0.056	0.032	-1.771	0.076
Goals	<---	Mission_Vision	0.093	0.035	2.689	0.007
Mission_Vision	<---	Goals	0.118	0.031	3.835	***

*** *p* value < 0.001l

It is evident from figure 5.19 and table 5.69 that the regression estimate (*b*) link between organisational climate and work output is strong (1.686) and significant (*p* = 0.000). Between emotional intelligence and organisational climate it was weak (*b* = 0.118) and insignificant (*p* = 0.061). From the modification indices, nine

links from emotional intelligence dimensions to dimensions of organisational climate were made in order to improve the model. The overall model testing did not yield much better results than those provided in figure 5.17. Furthermore, the unstandardised regression estimates of the links newly introduced were all immaterial in size.

Of the nine links, the one that added the only significant regression estimate was as follows:

From managing emotions to communication the link was b = 0.058 (p = 0.023). This would indicate that if an individual is able to manage his/her emotions during interactions with others, he/she will be able to create a better communication environment. However, the regression is too small to support such a claim.

The regression estimate between perceiving emotions: other to management was b = -0.067 (p = 0.028). If someone is able to accurately perceiving the emotions of others, then a less positive management environment is created. This only makes sense if it is perceived that emotional aspects undermine managerial objectivity. The size of the estimated regression, however, was too small to support such a claim.

The regression estimate between understanding emotions and creativity was b = 0.056 (p = 0.018). It would seem that the better equipped individuals are in terms of understanding emotional content, the better they are able to use it to enhance the creative environment. This argument would also explain the regression estimate between use of emotions to facilitate thought and creativity, where b = 0.051 (p = 0.048). Unfortunately, the estimated regressions were too small to support such claims.

The regression estimate between perceiving emotions: self and individual were b = 0.086 (p = 0.000). The manner in which an individual is sensitive to the

accurate perception of his/her own emotions enhances the creation of positive perceptions about individuals in the work environment. Again the regression was too small to support such claims.

The estimated regressions were insignificant for overall emotional intelligence and client service (p = 0.732), perceiving emotions: other and client service (p = 0.666), managing emotions and satisfaction (p = 0.217), and use of emotions to facilitate thought and empowerment (p = 0.076).

In order to better understand the strength of the relationship between variables, the correlations between the main variables of the model are presented below.

Table 5.70: Correlations between work output, emotional intelligence and organisational climate

		Empowerment	Training	Satisfaction	Teamwork	Retention	Client service	Individual	Change	Goals	Mission & vision	Diversity	Creativity	Values	Management	Communication	Quality	Efficiency (HR)	Care (OS)	Strategy (IP)	Overall climate	Work output
PES	Spearman's rho	0.052	0.023	0.104**	0.061*	0.075**	0.078**	0.151**	0.077**	0.089**	0.096**	0.085**	0.070*	0.164**	0.057*	0.031	0.080**	0.073**	0.110**	0.126**	0.099**	0.069*
	p value (2-tailed)	0.062	0.407	0.000	0.030	0.007	0.006	0.000	0.006	0.001	0.001	0.002	0.013	0.000	0.043	0.265	0.004	0.009	0.000	0.000	0.000	0.014
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
UOE	Spearman's rho	0.069*	0.079**	0.120**	0.134**	0.100**	0.152**	0.170**	0.115**	0.131**	0.175**	0.133**	0.191**	0.203**	0.118**	0.096**	0.167**	0.136**	0.169**	0.201**	0.167**	0.109**
	p value (2-tailed)	0.014	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
PEO	Spearman's rho	0.076**	0.042	0.099**	0.080**	0.098**	0.133**	0.124**	0.050	0.073**	0.147**	0.079**	0.130**	0.178**	0.035	0.051	0.104**	0.074**	0.121**	0.179**	0.114**	0.068*
	p value (2-tailed)	0.007	0.133	0.000	0.005	0.000	0.000	0.000	0.078	0.010	0.000	0.005	0.000	0.000	0.215	0.069	0.000	0.009	0.000	0.000	0.000	0.015
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
UE	Spearman's rho	0.064*	0.033	0.089**	0.045	0.070*	0.045	0.114**	0.043	0.058**	0.160**	0.063*	0.136**	0.159**	0.018	0.025	0.057*	0.045	0.113**	0.132**	0.082**	0.056*
	p value (2-tailed)	0.022	0.240	0.002	0.109	0.012	0.107	0.000	0.128	0.038	0.000	0.025	0.000	0.000	0.531	0.375	0.044	0.107	0.000	0.000	0.004	0.048
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
ME	Spearman's rho	0.071*	0.048	0.057*	0.134**	0.058*	0.139**	0.101**	0.112**	0.083**	0.153**	0.111**	0.107**	0.141**	0.097**	0.120**	0.145**	0.123**	0.085**	0.166**	0.128**	0.074**
	p value (2-tailed)	0.011	0.090	0.042	0.000	0.040	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.009
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
Overall GEIS v1.3	Spearman's rho	0.087**	0.055	0.128**	0.128**	0.111**	0.141**	0.175**	0.101**	0.105**	0.195**	0.126**	0.165**	0.226**	0.091**	0.093**	0.145**	0.120**	0.162**	0.212**	0.156**	0.099**
	p value (2-tailed)	0.002	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268
Work output	Spearman's rho	0.448**	0.383**	0.449**	0.543**	0.411**	0.345**	0.439**	0.457**	0.493**	0.381**	0.405**	0.467**	0.342**	0.530**	0.410**	0.479**	0.604**	0.533**	0.425**	0.614**	1.000
	p value (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.
	N	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268	1268

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Correlations were presented previously to determine the effect of emotional intelligence on work output. Correlations and regression analysis were also provided to determine the effect of organisational climate on work output. It was concluded that organisational climate influences work output, but that emotional intelligence does not. From the SEM it was also indicated that no influence directly from emotional intelligence to work outputs was suggested. The modification indices also did not suggest this link in any of the integrated models.

From the correlations provided in table 5.70, it is clear that emotional intelligence did not correlate with work output (r = 0.099), but that moderate correlations were evident between organisational climate and work output (r = 0.614). This is congruent with the regression estimates of the model depicted in figure 5.19.

From the correlation matrix, the strongest correlations between emotional intelligence and organisational climate second-order dimensions were as follows:

- strategy (IP) (r = 0.212)
- care (OS) (r = 0.162)
- efficiency (HR) (r = 0.120)

The strongest correlations between emotional intelligence and the first-order dimensions of organisational climate were obtained with

- values (r = 0.226)
- mission and vision (r = 0.195)
- individual (r = 0.175).

These dimensions were not entered into a stepwise regression model because the correlations were so low that they had already indicated the existence of a trivial link between emotional intelligence and organisational climate.

5.11 SUMMARY OF RESEARCH FINDINGS

The last part of this chapter provides a summary of the research findings.

Table 5.71: Summary of hypotheses

Hypothesis number	Hypothesis statement	Accepted/rejected
1	*Work output can be measured validly and reliably with the Work Output Questionnaire.*	Accepted
2	*Significant differences exist between the work output of different biographical and demographical categories.*	Partially rejected (Accepted for position level and age)
3	*Emotional intelligence can be measured validly and reliably with the Gerber Emotional Intelligence Scale (GEIS v1.3).*	Accepted
4	*Emotional intelligence influences work outputs.*	Rejected (Some support from SEM but the effect size negligibly small)
5	*Significant differences exist between the emotional intelligence of different biographical and demographical categories.*	Rejected
6	*Organisational climate can be measured validly and reliably with the High Performance Climate Questionnaire (HPCQ v1.3).*	Accepted
7	*Organisational climate influences work outputs.*	Accepted
8	*Significant differences exist between the organisational climate of different biographical and demographical categories.*	Partially rejected (Accepted for the categories of race, position level, age and geographical region. The categories of gender and tenure were not supported.)
9	*Emotional intelligence can be seen as a*	Rejected

	determinant of organisational climate.	Some support from SEM but the effect size of the interaction from emotional intelligence to organisational climate is negligible.

5.12 CHAPTER SUMMARY

This chapter dealt with the results (step 6) of phase 2, the empirical research, as part of the research methodology explained in section 1.8. The way in which the objectives were achieved is discussed below.

In this chapter, the research sample was first described in terms of biographical and demographical variables. Thereafter the work output measurement instrument was validated, following the factor analysis decision diagram as proposed in figure 4.1, followed by an item analysis. The interaction with biographical and demographical variables was then described.

Next the Gerber emotional intelligence measurement model (GEIS v1.3) was validated, followed by model testing to establish a link between emotional intelligence and work output. This was followed by a study of emotional intelligence across biographical and demographical variables.

The organisational climate measurement model (HPCQ v1.3) was then validated, the statistical model tested to establish a link between organisational climate and work output and organisational climate studied across biographical and demographical variables.

Finally, the work output, emotional intelligence and organisational climate components were fitted into a SEM to test the model that viewed emotional intelligence as a determinant of organisational climate. This model was improved further and interpreted.

The results of the interactions of the biographical and demographical variables for work output and organisational climate indicated that significant differences exist for position level and age (work output) and race, position level, age and geographical region (organisational climate). These need to be considered when developing interventions for the participating organisation.

The next chapter focuses on steps 7 (conclusions), 8 (limitations), and 9 (recommendations) in phase 2, the empirical research, as discussed in section 1.8.

CHAPTER 6: CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The previous chapter covered step 6 (results) of phase 2, the empirical research, as part of the research methodology presented in section 1.8. This chapter deals with steps 7 (conclusions), 8 (limitations), and 9 (recommendations) of the same phase to conclude the research.

In this final chapter, firstly, conclusions will be drawn on both the theoretical and empirical part of this research. Thereafter the limitations of this research will be noted and recommendations made for the participating organisation and further research, in general.

6.2 CONCLUSION

This research was conducted in two phases. A theoretical model of emotional intelligence as a determinant of organisational climate was established from the literature research, after which the empirical model for emotional intelligence as a determinant was constructed and tested using structural equation modelling (SEM).

The general aim of this research was formulated in section 1.4.1 in order *to derive a model for emotional intelligence as a determinant of organisational climate.*

The general aim was achieved through the achievement of the specific aims (as set in section 1.4.2) and will be discussed in the sections below.

6.2.1 The literature research

The literature research was conducted by presenting research on emotional intelligence, organisational climate and an integration of the two constructs.

6.2.1.1 Specific aims pertaining to the literature research on emotional intelligence

During this research, the first specific aim (as formulated in section 1.4.2) of phase 1 (the literature research) was achieved as follows:

Objective 1: To conceptualise emotional intelligence into a theoretical model

This objective was achieved in chapter 2. In meeting the objective, the following information came to light:

Emotional intelligence was defined as a trait that includes the following elements:

- *accurately perceiving own emotions*
- *accurately perceiving others' emotions*
- *effective use of own emotions to facilitate thought*
- *understanding emotions*
- *management of own emotions*

Attention was drawn to Caruso and Salovey (2004) who proposed the use (and practice) of a comprehensive emotional vocabulary to improve the ability to understand emotions better. These emotions were noted and served as a reference of emotions covered by this research.

It was noted that (classical) intelligence research seems to have challenged the concept of single factor intelligence (g) over the years, and more recent models of intelligence tend to include interaction with the real-world (contextual factors).

From this perspective, ability emotional intelligence could be meaningfully explained and interpreted.

The literature research indicated that emotional intelligence has a biological aspect but is also transferable through (direct and indirect) socialisation. Socialisation was indicated to take a number of forms, including modelling, training, coaching and guiding, and reinforcement of expressive behaviours. It is therefore logical that the theoretical integrated model of emotional intelligence that was developed in this research (section 2.10) has biological inputs. Biological factors influencing emotional intelligence were shown to include gender, personality and intelligence. The model indicated that acting with emotional intelligence in reaction to environmental demands will create positive and constructive leader-member-exchange (LMX) and interaction with peers. These interactions were shown to create a positive organisational context for future behaviour to take place and a positive psychological climate. The model also indicated the opposite in the sense that emotional unintelligent responses to environmental demands lead to negative and perhaps destructive LMX and interaction with peers and a negative organisational context or psychological climate.

Organisational contextual factors (psychological climate factors) were shown to include aspects such as change orientation, customer orientation, concern for quality and problem solving, job involvement, work-family conflict, organisational commitment, withdrawal intention, psychological wellness, altruistic behaviour and job satisfaction. Generating these organisational contextual factors may be extremely demanding and may lead to the experience of emotional labour if not managed properly, but also sets an organisational context that may facilitate work performance.

During the conceptualisation of emotional intelligence, attention was also focused on the psychometric assessment of the construct. This was done to lay a

platform for the development of an emotional intelligence scale and the interpretation of results during the empirical part of this research.

6.2.1.2 Specific aims pertaining to the literature research on organisational climate

During this research, the second specific aim (as formulated in section 1.4.2) of phase 1 (the literature research) was achieved as follows:

Objective 2: To conceptualise organisational climate into a theoretical model

This objective was met in chapter 3. In achieving the objective, the following information came to light:

The literature research on organisational climate indicated that climate can be studied at different levels, namely individual (psychological climate), group (group climate) and organisational level (organisational climate). The focus of this research was on organisational level (organisational climate) and it was studied as a generic or molar construct from a cultural perspective. This allowed for a wider view of the construct and a greater level of alignment to organisational culture, a related construct.

This research defined organisational climate as a surface-level manifestation of organisational culture that becomes accessible through the perceptions, attitudes and feelings which organisation members share about significant aspects of the organisation.

The etiology of climate and culture were discussed together and it became evident how climate forms on the periphery and culture at a deeper level. The framework of Schneider and Reichers (1983) seems to best describe the etiology when climate is viewed as a function of the organisational structure, the

selection-attraction-attrition process, and the symbolic interaction with its members.

At a deeper level it was indicated that culture is communicated (and thereby transferred) to others (mostly newcomers) by means of storytelling, rituals, material symbols and language in order to effectively deal with difficulties in external adaptation demands and internal integration, and is as such a critical element in the survival of organisations.

This literature research indicated that perceptions, attitudes and feelings form or change relatively quickly and it was indicated that, should there be sufficient consensus, climate will be experienced collectively (shared) by the group or the organisation (and can then be measured validly on these levels). The values underlying these shared perceptions, attitudes and feelings were shown to take much longer to subscribe to or change, and represent (in the strict sense) culture, albeit at a more accessible level. Fundamental beliefs, ideologies and basic assumptions take much longer to share and are even more difficult to access from a measurement perspective. These elements are closer to the core of culture.

Climate can validly be analysed at three different levels, namely at individual (psychological climate), group (group climate) or organisational level (organisational climate). In addition, this research indicated that the construct culture allows analysis at another level, namely national level (national culture).

The integrated model of organisational climate was elucidated in paragraph 3.11. This model views the context for work behaviour as comprising external factors (physical and socio-cultural environment), organisational factors (structure, selection, attraction, attrition, symbolic interactions) and person factors (management behaviour, leadership pattern, reward and control). This model indicated that at individual level, through a process of intersubjectivity, quasi-

facts accumulated in everyday work life are integrated into a cognitive representation in the form of a dimensional structure of psychological, group or organisational climate (Field & Abelson, 1982). Because the intersubjectivity process is by nature subjective, the climates that form are portrayed by this model as being influenced by personality attributes, cognitive structures (Moran & Folkwein, 1992), the group and task (Field & Abelson, 1982) and influence how these perceptions, attitudes and feelings are formed, but also how strongly they are shared in the group. These climates influence the cognitive maps that drive future performance and productivity of individuals through the generation of commitment, motivation, satisfaction and citizenship behaviour.

In conceptualising organisational climate, attention was also focused to the psychometric assessment of the construct. This was done to provide a platform on which an organisational climate measurement instrument could be developed and measurements interpreted during the empirical part of this research.

6.2.1.3 Specific aims pertaining to the literature research on emotional intelligence as a determinant of organisational climate

During this research the third specific aim (as formulated in section 1.4.2) of phase 1 (the literature research) was achieved as follows:

Objective 3: To conceptualise a theoretical model that views emotional intelligence as a determinant of organisational climate

This objective was achieved in chapter 3. In meeting the objective, the following information came to light:

Firstly, the literature research revealed research on the link between the constructs of emotional intelligence and organisational climate. Thereafter the

integrated emotional intelligence theoretical model derived in section 2.10 and the integrated organisational climate model derived in section 3.11 were further integrated into a theoretical model that encapsulates emotional intelligence as a determinant of organisational climate in section 3.14. This model was presented to conceptualise emotional intelligence as a determinant of organisational climate in order to derive the research hypothesis presented in section 4.2, as well as to interpret the empirical research results.

This concluded the literature research.

6.2.2 The empirical research

6.2.2.1 Specific aims pertaining to the empirical research on emotional intelligence

During this research, the first, second, third, fourth, and fifth specific aims (as formulated in section 1.3.2) of phase 2 (the empirical part) were achieved as follows:

Objective 1: To test the statistical validity and reliability of the Work Output Questionnaire

The measurement of work output became relevant in this research because a link was postulated by the theoretical integration model of emotional intelligence as a determinant of organisational climate. The validity and reliability of the Work Output Questionnaire were discussed in section 5.3.1. The validity of this questionnaire was investigated by means of exploratory factor analysis. All the work output items loaded on to a single factor. The reliability was indicated by a Cronbach alpha value of 0.883.

Objective 2: To establish statistically if significant differences exist between the work output of different biographical and demographical categories

Differences in work output were studied across the biographical and demographical categories of race, gender, position level, age, tenure and geographical region in section 5.4. The independent samples Kruskal-Wallis test indicated only statistical differences between work output within the categories of position level and age.

Objective 3: To test the statistical validity and reliability of the Gerber Emotional Intelligence Scale (GEIS v1.3)

The statistical validity and reliability of the GEIS v1.3 were discussed in section 5.5.1. The validity of the GEIS v1.3 was indicated by means of exploratory factor analysis. All the items loaded on to a single factor as well as on to factors that resemble the dimensional structure of the scale. This was supported by confirmatory factor analysis. The reliability of the scale was indicated using Cronbach's alpha with the overall reliability indicated as r = 0.900.

Objective 4: To establish statistically if emotional intelligence influences work outputs

The link between emotional intelligence (measured by means of GEIS v 1.3) and work output was tested by means of SEM in section 5.5.3. Although support for the model was obtained, noticeably low regression estimates between emotional intelligence and work output were evident. This was echoed by trivial correlations between the overall emotional intelligence and work output of r = 0.099. This research finding therefore concludes that emotional intelligence does not influence work output.

Objective 5: To establish statistically if significant differences exist between the emotional intelligence of different biographical and demographical categories

Differences in emotional intelligence across the biographical and demographical categories of race, gender, position level, age, tenure and geographical region were elucidated in section 5.6. Owing to the fairly homogeneous sample, no significant differences in mean scores of emotional intelligence were detected by a Kolmogorov–Smirnov test across any of the biographical and demographical categories.

6.2.2.2 Specific aims pertaining to the empirical research on organisational climate

During this research the sixth, seventh, and eighth specific aims of phase 2 (the empirical part) were achieved as follows:

Objective 6: To test the statistical validity and reliability of the High Performance Climate Questionnaire (HPCQ v1.3)

The statistical validity and reliability of the HPCQ v1.3 were explained in section 5.7.1. The validity of this questionnaire was indicated by means of exploratory factor analysis. All the items loaded on to a single factor as well as on to factors that correspond to the dimensional structure of the scale. This was supported by confirmatory factor analysis. The reliability of the HPCQ v1.3 was indicated using Cronbach alphas with the overall reliability indicated as $r = 0.978$.

Objective 7: To establish statistically if organisational climate influences work outputs

The link between organisational climate (measured by means of the HPCQ v1.3) and work output was tested and supported by means of SEM in section 5.7.3.

The SEM yielded a strong estimated regression, which was echoed by a moderate correlation of r = 0.614 between organisational climate and work output. The stepwise linear regression that followed indicated that 39.5% of the variance of work output was explained by organisational climate.

Objective 8: To establish statistically if significant differences exist between the organisational climate of different biographical and demographical categories

Differences in organisational climate across the biographical and demographical categories of race, gender, position level, age, tenure and geographical region were explained in section 5.8. Based on one-way analysis of variance (ANOVA), significant differences in the mean climate scores could be detected for the categories race, position level, age and geographical region. The lack of support for differences existing between the categories of gender and tenure could be attributed to the homogeneity of the sample.

6.2.2.3 Specific aims pertaining to the empirical research on the model that views emotional intelligence as a determinant of organisational climate

During this research, the ninth specific aim of phase 2 (the empirical part) was achieved as follows:

Objective 9: To establish statistically if emotional intelligence can be seen as a determinant of organisational climate

The link between emotional intelligence (measured with the GEIS v1.3), organisational climate (measured with the HPCQ v1.3) and work output was tested using SEM in section 5.9. Although adequate statistical support for the model was provided by SEM, the estimated regressions indicated a weak link from emotional intelligence to organisational climate. This was echoed with poor correlations such as overall emotional intelligence and organisational climate (r =

0.156). Thus, although some support was evident for viewing emotional intelligence as a determinant of organisational climate, the magnitude of the relationship was not strong enough to confirm this.

Previous research (discussed in section 3.13) did suggest at least a weak link between emotional intelligence and organisational climate. These studies, as well as the current study, used a trait emotional intelligence instrument. Previous research (elucidated in section 3.8.10) also suggested a weak to low positive correlation between emotional intelligence and performance. Both these correlations were not supported by this research and the researcher concluded that the sample in which this research was done differed significantly from the above-mentioned studies. More specifically, this research did not support the notion that emotional intelligence can be linked to work output, and that emotional intelligence is a determinant of organisational climate within the participating organisation in the financial services sector.

Hence all the specific research objectives were achieved.

6.3 LIMITATIONS

The limitations of this research will be explained in two steps, namely the limitations of the literature research and the limitations of the empirical research.

6.3.1 Limitations of the literature research

In this research, emotional intelligence was studied within the trait emotional intelligence paradigm. This excludes emotional intelligence as viewed from an ability paradigm. In this regard, Petrides (2011) indicates that these paradigm differences may be much larger than what is generally accepted and may almost be viewed as two separate constructs. Although the rationale therefore was that trait emotional intelligence seems to produce better links with organisational

performance, the fact remains that ability emotional intelligence was excluded, technically, from the conceptualisation when the focus shifted to trait emotional intelligence. The integration model of emotional intelligence (as conceptualised in section 2.10) and the integration model of emotional intelligence as a determinant of organisational climate (conceptualised in section3.14) both focus on trait emotional intelligence and if the focus had been on ability emotional intelligence, the conceptualisation might have been somewhat different.

Similarly, the paradigm from which organisational climate was researched was to view organisational climate as a generic (molar) construct, as opposed to organisational climate with a specific or strategic focus. The approach was also viewed on the basis of Moran and Volkwein's (1992) cultural approach (as opposed to the structural, perceptual or interactive approach). In narrowing down the construct for this research, one should be mindful of the fact that organisational climate with a strategic focus, or defined from one of the remaining approaches is technically not fully represented in the integrated organisational climate model (as conceptualised in section 3.11) and the integrated model that views emotional intelligence as a determinant of organisational climate (as conceptualised in section 3.11).

6.3.2 Limitations of the empirical research

All psychometric assessments are conducted in a specific context. The context in which the empirical part of this research was conducted was described in section 5.2 as a financial services organisation with 15 557 employees residing in South Africa. The sample was described in terms of the distribution of race, gender, position level, age, tenure and geographical region. In summary, the sample was dominated by whites and Africans, mostly female, mostly team leaders and middle managers, mostly in the age range between 31 to 40, mostly between 0 to 5 years working in the organisation, and mostly located at the head office in Pretoria.

Through a process of self-selection and intentional selection practices, employees were selected using a process that included psychometric assessment practices to match (mostly) financial types of positions, as well as to fit into the organisation's values and leadership competency model.

The sample was therefore not only unrepresentative of the South African population, but also represented a group that was homogeneous in terms of the skills required, the culture of the organisation and more advanced in terms of leadership capability and general abilities. Specifically, these leadership competencies would load on to emotional intelligence, and the sample was not normally distributed because the lower part of the normal distribution curve, lower emotional intelligent candidates, was not selected. The population was thus somewhat homogeneous (The population would therefore differ from a randomised sample of general South African citizens.)

The above considerations influenced the present empirical research in the following two ways:

- It could be argued that the findings were specific to the organisation used and this posed challenges in its generalisation to the wider South Africa, and internationally.
- Because the group was fairly homogeneous, less variation could be expected in the assessment scores, resulting in a dampened statistical effect.

6.4 RECOMMENDATIONS

In the following sections, recommendations will first specifically be made for the participating organisation and then for industrial and organisational psychologists and practitioners in general.

In the literature study, current literature was reviewed and a model for emotional intelligence as a determinant of organisational climate was developed and explained in section 3.14. Practical guidelines for the use of this model in non-financial organisations (based on the literature research) are elucidated in section 6.4.2.

Since the empirical research indicated too little support for the model to be used in the participating organisation, the focus will therefore shift to organisational climate and work output in section 6.4.1 below.

6.4.1 Recommendations for the participating organisation

The HPCQ was refined and (v1.3) validated during the empirical part of this research. The dimensions of the model were balanced in terms of the four quadrants of the competing values theory to ensure a well-rounded view of organisational climate and to link organisational climate and culture conceptually in a single instrument. This instrument correlated moderately with work output and the empirical part of this research produced a measurement instrument that could be used in the future for diagnostic purposes to inform organisational developmental interventions.

Similarly, the GEIS was refined and (v1.3) validated during the empirical part of this research and built on research to ensure negative correlations with the Toronto Alexithymia Scale (TAS), weak positive correlations with extroversion and weak negative correlations with neuroticism. This instrument was used as a self-report assessment tool during this research, but it is recommended that its use be extended as a 360-degree evaluation instrument for personal developmental purposes.

On the basis of the empirical research results it is recommended that organisational developmental interventions should rather aim at improving

organisational climate to increase organisational output than to focus on emotional intelligence. Specifically, the organisational climate dimensions of teamwork (r = 0.543), management (r = 0.530) and goals (r = 0.493) correlated the highest with work output and should deliver the best organisational output results. The higher-order dimensions of efficiency (HR) (r = 0.604), care (OS) (r = 0.533), and strategy (IP) (r = 0,425) also correlated moderately with work output. Overall, organisational climate correlated moderately with work output (r = 0.614) and emphasis on organisational climate *should* therefore improve organisational output.

The organisation should take cognisance of the significant differences between the climates of the biographical and demographical groups of race, position level, age and geographical region. In practical terms, this would mean that an emphasis on specific biographical and demographical groups might improve their organisational climate and subsequently their work output. The results of the work output analysis also indicated significant differences between work output for position level and age. Those respondents with more senior positions in the organisation and those who are older produce higher work output.

Figure 6.1 below portrays a practical guide for linking work output, the HPCQ v1.3 dimensions, and the external, organisational and person factors that provide the context for organisational behaviour. The HPCQ v1.3 could therefore be used for diagnostic purposes to benchmark, track changes and measure improvements (impact) in the environment (work context) that ultimately influence work outcomes.

The links suggested in figure 6.1, indicate that organisational factors (the organisational structure, the selection, attraction and attrition process, and symbolic interactions) are closely related to the efficiency (HR) cluster of organisational climate dimensions and most strongly related to work output. The HPCQ v1.3 dimensions of empowerment, training, teamwork, change, goals,

diversity, management, communication and quality should be targeted to benchmark and track developments.

The second group of contextual factors, namely person factors, include aspects such as management behaviour, leadership patterns, reward and controls and are aligned to the care (OS) cluster of the HPCQ v1.3 dimensions. Care (OS) is the second most influential higher-order dimension when correlated to work output. This higher-order dimension includes climate dimensions such as satisfaction, retention, individual and creativity. Through the measurement, benchmarking and development of these dimensions, the organisation would be able to address the person factors that provide context for organisational behaviour.

The third group of contextual factors, namely the external factors include aspects such as the external and sociocultural environment. These factors are associated with the strategy (IP) cluster of the HPCQ v1.3 and, although the least influential on work output, they do still correlate moderately with work outcomes. The HPCQ v1.3 dimensions of mission and vision, values and client service are directed towards the external environment and provide a measure to benchmark, track and improve on this part of the contextual factors in which organisational behaviour occurs. The link between the context of work behaviour, the HPCQ v1.3 dimensions and work output is depicted in figure 6.1 below.

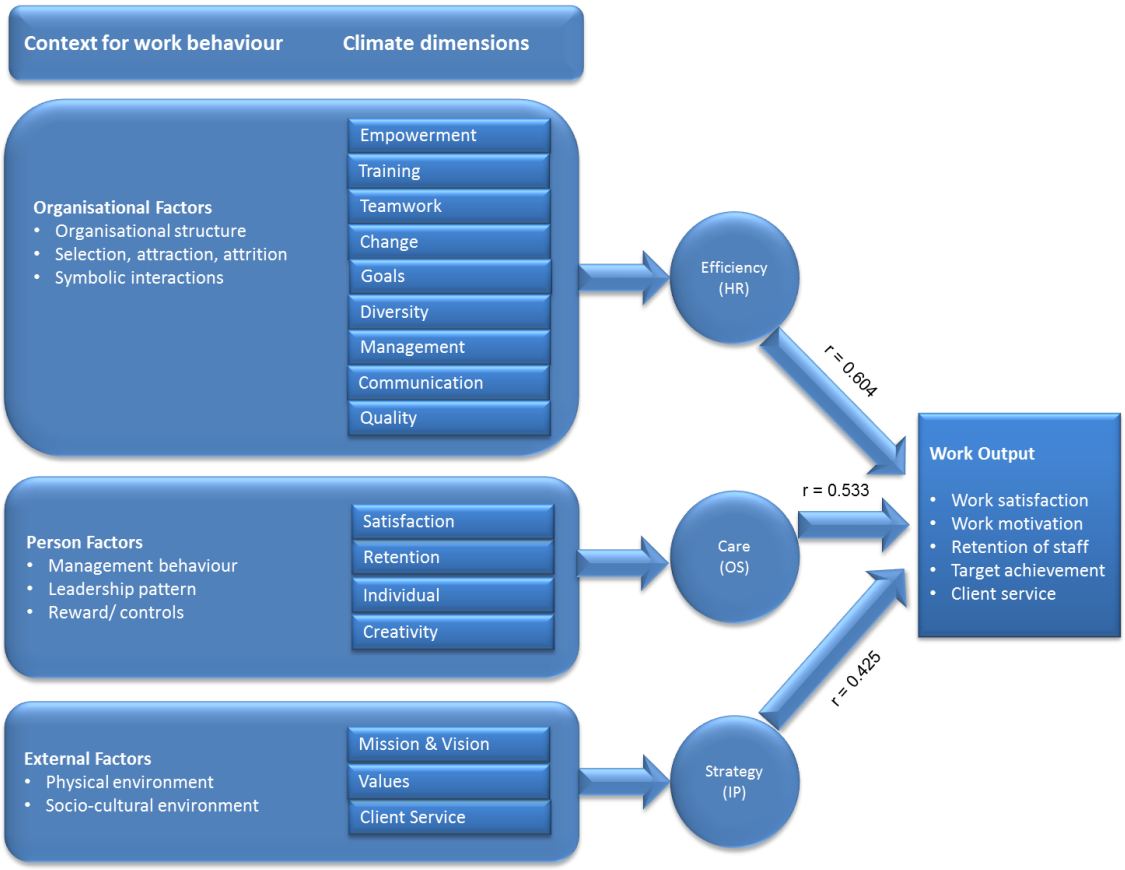


Figure 6.1: Link between the context of work behaviour, the HPCQ v1.3 dimensions and work output

In view of the low effect size between emotional intelligence and work output, it is recommended that learning and development in the participating organisation should review current emotional intelligence development programmes, especially where they were introduced to create greater organisational output. The empirical research in chapter 5 suggests that trait emotional intelligence learning and development programmes may not generate a return on investment in the participating organisation.

Some organisations focus in their recruitment and selection strategies on the attraction of emotional intelligence. In terms of the empirical research results, it is recommended that the participating organisation should not focus on emotional

intelligence, but instead on the selection of strong and competent leaders, capable of creating strong, high performance work climates.

Lastly, it is recommended that an effort should be made in the participating organisation's talent management to equip managers to build high performance work climates, instead of developing managers' emotional intelligence to create sustainable future performance.

6.4.2 Recommendations for industrial and organisational psychologists and practitioners: Development of high performance climates

The theoretical integration model of emotional intelligence as a determinant of organisational climate was developed and discussed in section 3.14, integrating the current research on both constructs.

This theoretical model supports the fact that organisational climate is linked to bottom-line indicators and that emotional intelligence influences these indicators through organisational climate. Emotional intelligence may therefore be regarded as a determinant of organisational climate. The theoretical integration model of emotional intelligence as a determinant of organisational climate (as explained in section 3.14) identified the objective work context and emotional intelligence (together with moderators such as personal attributes, the work group and the task) as important forces in determining how quasi-facts from the objective work context are interpreted during a process of intersubjectivity.

This literature research and theoretical model suggest that in order to improve organisational climate (and ultimately) organisational performance, interventions need to focus on the objective job context (the work environment), but also consider the influence that emotional intelligence has on how the objective job context is perceived and interpreted.

One should note at this juncture that the theoretical model was *not* supported by the empirical research in the participating financial services organisation. (The magnitude of the relationship was trivial.) The empirical research results were probably more influenced by the characteristics of the sample and population than what was initially anticipated. This point was discussed in section 6.3.2 and the recommendations below should therefore not be applied to financial services organisations. These recommendations are therefore not based on the empirical research (except for the fact that financial services organisations are excluded) and based on the literature research which informed the integration model presented in section 3.14.

This model suggests that if high performance work climates are to be developed through the development of emotional intelligence, then the focus should be on three areas, namely external, organisational and person factors. Unfortunately, this research could not contribute to an understanding of which emotional intelligence dimensions are of more importance to the development of which climate dimensions (elaborated on in figure 6.1). Hence the development of all the emotional intelligence dimensions will be discussed as a strategy for the development of the afore-mentioned contextual factors. Recommendations for the development of emotional intelligence to influence the process of intersubjectivity in order to create a more positive climate and ultimately more positive work output, are made in annexure 7.

6.5 RECOMMENDATIONS FOR FURTHER RESEARCH

This research did provide some support for the structural equation model of emotional intelligence as a determinant of organisational climate. The effect between emotional intelligence and organisational climate was, however extremely weak. More research on moderators for the effect of emotional intelligence on organisational climate would be needed.

From the discussion on the limitations in the empirical research it is evident that the research was conducted in a sample that was limited to a single financial services organisation. It is quite possible that personality characteristics such as introversion, being analytical, risk aversion or low creativity and being emotionally contained might have been dominant in this group and possibly limited the extent to which emotional intelligence was used in the work environment (Emotional intelligence was indeed indicated to correlate positively to extroversion and negatively to neuroticism.) The latter was the case, despite the expectation that the sample might have been higher on emotional intelligence as a result of the higher representation of team leaders and middle managers. It is therefore recommended that the same study be repeated in other organisations where other employees are selected for other typical personality characteristics, utilising the same or similar trait emotional intelligence and molar organisational climate instruments. During this study, a closer focus on the moderation effect from personality may have revealed something about the conditions in which emotional intelligence acts as a determinant of organisational climate.

Moderators indicated from the theoretical model of emotional intelligence as a determinant of organisational climate were classified as personal attributes (such as personality, engagement and cognition), the work group and the task itself. More research on how these moderators influence the relationship between emotional intelligence and organisational climate is required to understand when interventions based on emotional intelligence would be effective to create better work climates, and ultimately, improved work output.

It is further recommended that the same SEMs be tested in the same organisation for different classes of biographical and demographical variables to establish if these models could validly be applied in these different classes in the same organisation. For instance, any or all of the SEMs used in this empirical research could yield significantly different results when contrasted for specialists and managers, generation y and generation x employees, or different divisions.

With the many advances in the field of neuropsychology, and more specifically in the field of neuroplasticity of the brain, there seems to be a wide, unexplored area of research. This link could specifically be useful in understanding how emotional intelligence is learnt/improved.

A psychometric challenge still remains, namely the fact that there is no agreement about the use of a statistic to indicate consensus between employees to show that climate may in fact be analysed at that level. Furthermore, the range deemed sufficient/acceptable to allow further analysis needs to be investigated. At present, consensus is accepted to be in place (and one rely on ANOVA and Cronbach alfa statistics for sub-groups), but it will always remain an open question if it was indeed the case.

6.6 CHAPTER SUMMARY

This chapter dealt with steps 7 (conclusions), 8 (limitations) and 9 (recommendations) of phase 2, the empirical research, as part of the research methodology outlined in section 1.

Conclusions were drawn on both the theoretical and empirical parts of this research. The limitations of the research were explained and recommendations for further research made. In so doing, this chapter achieved its objectives.

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ANNEXURE 1: GUIDE TO THE HIGH PERFORMANCE CLIMATE QUESTIONNAIRE (HPCQ v1.1)

Guide to the

High Performance Climate Questionnaire (HPCQ v1.1)

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High Performance Climate Questionnaire

1 Background to the organisational climate model

The High Performance Climate Questionnaire is an instrument for the measurement of organisational climate. The construct of organisational climate entails the shared perceptions, attitudes and feelings of employees about organisational attributes.

2 Organisational climate and organisational culture

Organisational climate differs from organisational culture in that culture refers to the shared common resources of a group of people, a pattern of assumptions, fundamental beliefs, values as well as other learnt responses obtained while coping with problems of survival. Clearly these aspects are difficult to measure objectively and accurately. Organisational climate is viewed as a surface manifestation of organisational culture, and much more accessible in terms of measurement than organisational culture. In a sense, climate and culture are two different perspectives of the same phenomenon, and climate provides a way of accessing the deeper underlying construct of organisational culture.

3 Impact of organisational climate on organisational performance

The popularity of organisational climate surveys stems from the well-established link between organisational climate and organisational performance. Linkage research on the climate-performance relationship confirms the relationship between climate and the following organisational outcomes, inter alia:

- work motivation
- work satisfaction
- organisational commitment
- labour relations
- health and safety
- client satisfaction
- turnover
- market share
- share price

Shared perceptions, attitudes and feelings (organisational climate) are often more significant to managers than the traditional performance indicators because they predict future organisational performance effectively.

The *perceived reality* of employees may sometimes differ significantly from the *objective reality*. Irrespective of the real (objective) situation, employees act on their perception of the situation and insight into the *perceived reality* of

employees may therefore be of even greater importance to managers than the objective, real situation.

Managers often raise the following questions:

How can we get our employees to experience true work satisfaction?
How can we retain our staff?
How can we get our employees to build and maintain sound working relationships?
… and how can we get our employees to set challenging targets, arrive early for work and work hard to achieve and exceed these challenging targets?

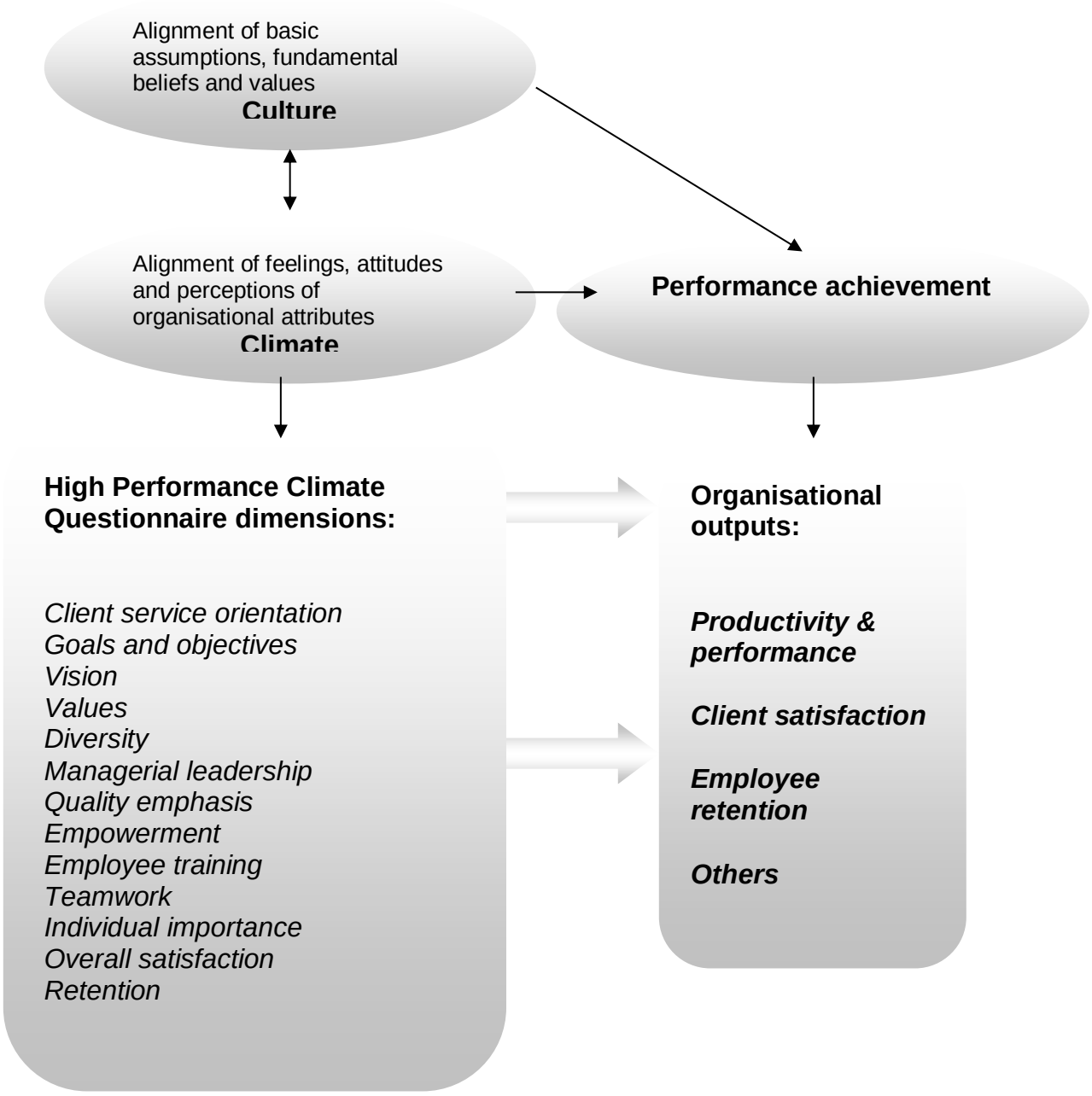
In other words, how do we motivate our employees to achieve higher levels of organisational performance in a sustainable manner?

The only short answer to these questions is that we need to *create a high performance climate*; an environment that spurs employees on to greater heights.

Although the answer is short, and the results lucrative, it requires hard work and commitment to accomplish a true high performance organisational climate.

Below is a summary of the proposed theoretical high performance climate model.

The simplified high performance climate model



4 Scale description

The questionnaire is a pencil-and-paper test and consists of 93 items. It takes approximately 15 to 25 minutes to administer. No time limitation should be applied, although it is strongly recommended that respondents complete the questionnaire in one session without interruptions and discussions with one another.

The questions are presented in the form of statements about the work environment, and respondents are asked to indicate the extent to which they agree or disagree with these. Respondents use the supplied five-point scale for their responses.

5 Psychometrics of the questionnaire

The climate questionnaire was developed to measure the generic climate dimensions associated with high levels of organisational performance.

5.1 Validity

The factor structure of the questionnaire is firmly supported by exploratory factor analysis. The structure of the questionnaire is currently also under scrutiny in a doctoral study and the model is used in a master's study.

5.2 Reliability

The reliability (as measured by the Cronbach alpha) of the total questionnaire and the sub-scales meets exceptional psychometric standards and is reported below (n = 2 467).

Client service orientation	0.868
Goals and objectives	0.853
Vision	0.878
Values	0.944
Diversity	0.784
Managerial leadership	0.870
Quality emphasis	0.880
Empowerment	0.869
Employee training	0.877
Teamwork	0.852
Individual importance	0.815
Overall satisfaction	0.796
Employee retention	0.745
Total questionnaire	**0.967**

From the above it is clear that the HPCQ is a highly valid and reliable measurement instrument for organisational climate which reduces the risk of measurement error to insignificant levels.

6 High performance climate dimensions and measurement scale

The dimensions measured with the survey are define below.

High performance climate index
This index is used for benchmarking purposes and represents a quantitative measure of the overall climate.

Client service orientation
The organisation values, understands, emhasises and reacts to its customers and anticipates their future needs. This orientation reflects the degree to which the organisation is driven by a concern to satisfy its customers.

Goals and objectives
A clear set of goals and objectives can be linked to the mission, vision and strategy, and provides everyone with clear direction in their work.

Vision
The organisation has a shared view of a desired future state. The vision embodies core values and captures the hearts and minds of the organisation's people, while providing guidance and direction.

Values
Members of the organisation are aware of the organisation's values and share them personally. These values create a sense of identity for the organisation.

Diversity
Employees buy into the organisation's diversity strategy (in terms of age, race, gender and disability) and feel positive about diversity changes.

Managerial leadership
Managerial leadership is deemed effective at all levels of the organisation.

Quality emphasis
Employees are committed to and emphasise quality work and continuous improvement to the quality of work.

Empowerment
Employees have the appropriate knowledge and information available to perform their jobs adequately. They also have the authority, initiative and

ability to manage their own work. This creates a sense of ownership and responsibility towards the organisation.

Employee training
Training is effective and helps employees to become more productive.

Teamwork
Teamwork is valued and encouraged by management and employees. Team members cooperate and assist each other to become more productive.

Individual importance
The individuality of the organisation's members is recognised. Individuals are utilised in areas that are important to them and everyone feels that their individual contributions towards the organisation's outputs are vital.

Overall satisfaction
Employees are generally satisfied with their work, their team, management, salary and so forth.

Retention
Employees value their relationship with the organisation and do not intend resigning or changing jobs.

Interpretation of scores should be done strictly with reference to these definitions as any interpretation with reference to the *general meaning* of concepts like *management*, *satisfaction* and so forth will lead to invalid conclusions.

The raw scores are converted into a five-point standardised scale and may be interpreted with reference to the following key:

Score	***Interpretation***
1	Much lower score than the norm
2	Somewhat lower than the norm
3	Same as the norm
4	Somewhat higher than the norm
5	Much higher than the norm

(Note that this scale differs from the five-point rating scale used by the respondents, this being strongly disagree to strongly agree.)

7 Applications of the high performance climate model

The high performance climate questionnaire provides valid, reliable and structured feedback from employees about critical aspects of the organisation which are closely related to performance.

A high performance climate survey is especially suitable for the applications listed below.

Organisational development

- ✓ *Assessment (benchmark) of current strengths and weaknesses of the organisation as a whole, as well as work teams/ functions*
- ✓ *Prioritisation of change efforts*
- ✓ *Measurement of change effectiveness (impact)*
- ✓ *Understanding bottom-line performance (turnover, market share, quality, innovation) with direct links to climate elements that may support or hinder performance achievement*
- ✓ *Shared understanding about organisational climate, and its practical implications, throughout the organisation*
- ✓ *Informing/validating training needs analysis*

Mergers

- ✓ *Understanding similarities and/or differences for the planning of integration*
- ✓ *Prioritising change enablement interventions*
- ✓ *Creating a benchmark to track organisational improvement*
- ✓ *Measuring the effectiveness of change enablement interventions*
- ✓ *Creating a common purpose and working towards building a common climate*
- ✓ *Informing leadership development and/or selection plans to support a high performance climate.*

Restructuring

- ✓ *Identifying business areas in need of restructuring*
- ✓ *Targeting and prioritising change enablement efforts to match the desired future state (at team, divisional and organisational level)*
- ✓ *Measuring the effectiveness of restructuring and early identification of possible negative deviations from the strategy*

Start-up

- ✓ *Creating a benchmark early in the organisation's existence in order to focus organisational development and to rectify any deviations during early stages*
- ✓ *Identifying immediate areas of concern in order to set the organisation up for high performance:*
  - *Are there a clear vision, mission, values and goals?*
  - *Are there management practices in place that support client orientation, quality of work, knowledge and empowerment, teamwork and so on?*
  - *Are individuals and individual contributions considered in order to maintain satisfaction levels, maintain retention of staff, and build on the capacity to meet future needs?*
- ✓ *Creating a benchmark to assess progress in the start-up process in order to react early to deviations/ problem areas*

New CEO/manager

- ✓ *Facilitating rapid (but accurate) insight into the organisation's strengths and weaknesses*
- ✓ *Facilitating prioritisation of development efforts to address the identified weaknesses*
- ✓ *Bridging the cultural gap – facilitating better understanding of climate influences on organisational performance factors*
- ✓ *Creating a baseline to measure effectiveness of the CEO's own success in moving the organisation towards high performance*

Organisations facing difficulties

- ✓ *Interpretation of climate dimensions and their possible links to the decline of the organisation's performance:*
  - *Are there a clear vision, mission, values and goals?*
  - *Are there management practices in place that support client orientation, quality of work, knowledge and empowerment, teamwork and so on?*
  - *Are individuals and individual contributions considered in order to maintain satisfaction levels, maintain retention of staff and build on the capacity to meet future needs?*
- ✓ *Prioritisation of change enablement efforts to reverse decline in specific areas*

New strategic initiative

- ✓ *To identify if the necessary climate conditions are in place to support the successful implementation of the initiative:*
  - *Are there a clear vision, mission, values and goals?*
  - *Are there management practices in place that support client orientation, quality of work, knowledge and empowerment, teamwork and so on?*
  - *Are individuals and individual contributions considered in order to maintain satisfaction levels, maintain retention of staff and build on the capacity to meet future needs?*
- ✓ *Prioritisation of change enablement interventions to support the new initiative and ensure successful implementation.*

Customer service challenges

- ✓ *Identification of climate elements which promote or impede customer service:*
  - *Are the vision, mission, values and goals clearly articulated in terms of the challenge being faced?*
  - *Are there management practices in place that support client orientation, quality of work, knowledge and empowerment, teamwork and so on?*
  - *Are individuals and individual contributions considered in order to maintain satisfaction levels, maintain retention of staff, and build on the capacity to meet the customer service challenge?*
- ✓ *Prioritisation of change enablement interventions to address specific customer service challenges*

Improvement of employee quality of work

In addition to the applications listed above, a high performance climate survey already sets the scene for the following:

- Improved organisational communication, where valuable organisational feedback is provided in a structured manner to management for serious consideration

- Improved quality of work life, where management becomes aware of issues impeding the quality of employees' work life

ANNEXURE 2: PILOT STUDY 1A: VALIDATION OF THE EMOTIONAL INTELLIGENCE MEASUREMENT MODEL (GEIS V1.1)

1 Sample description

A stratified sample was drawn to represent an organisation in the financial services sector across its different functional areas. The same organisation was used during the validation of the organisational climate measurement instrument as well as the main study. The questionnaire was administered electronically in a sample of n = 656 candidates.

2 Big Five measure

The researcher constructed a short Big Five personality questionnaire to assess the extent to which the (trait) emotional intelligence questionnaire overlaps with the construct personality.

The sub-scales of the Big Five measure are as follows:

- neuroticism
- extroversion
- openness
- agreeableness
- conscientiousness

3 Validity

As the Big Five measurement instrument is a newly developed instrument and no historical data is available on its validity.

The validity of the instrument was demonstrated, based on its factorial structure.

The unrotated matrix was uninterpretable. A five-factor, promax rotated solution yielded the best results and supported the underlying structure of the instrument.

Only four items loaded on to *agreeableness* and only three on to *conscientiousness*. Although all five factors were found, only limited support was found for these two dimensions.

	Pattern matrix component				
	Neuroticism	**Extroversion**	**Openness**	**Agreeableness**	**Conscientiousness**
Item 01	0.461	-0.118	0.107	-0.230	-0.269
Item 06	0.666				
Item 11	0.574		0.235	0.278	
Item 16	0.718		-0.101		
Item 26	0.714				
Item 07	-0.347	0.470	0.118		
Item 12	0.113	0.799			
Item 17	-0.198	0.489			-0.207
Item 22	0.138	0.815	-0.102		0.226
Item 27	-0.109	0.497	0.145		-0.265
Item 08			0.161	0.388	0.364
Item 18					0.786
Item 28				-0.114	0.709
Item 04			0.416	0.137	
Item 09	-0.127		0.574		
Item 19	-0.108		0.618		
Item 24	0.162		0.535		0.223
Item 29			0.712	-0.151	
Item 10		-0.144	0.208	0.327	
Item 20			-0.372	0.688	-0.216
Item 30		-0.140		0.692	
Item 02	0.241	0.204	0.134	0.509	

Extraction method: Principal component analysis

Rotation method: Promax with Kaiser normalisation.

Rotation converged in six iterations.
Green shading indicates factor loadings of items on the intended factor.

4 Reliability

The reliability of the Big Five scale rests on the internal consistency as indicated by Cronbach's alpha.

	Neuroticism	Extroversion	Openness	Agreeableness	Conscientiousness
Number of items	5	5	3	5	4
Number of cases	633	634	629	626	634
Cronbach alpha	0.59	0.66	0.42	0.54	0.39

Since the instrument was used for research purposes only, consideration was given to the fact that the reliability of the instrument was low. The measurement of conscientiousness in particular had an extremely low reliability index. Scores on openness and agreeableness had to be interpreted conservatively.

5 TAS-20

The 20-Item Toronto Alexithymia Scale was used to assess alexithymia. Unfortunately two items (items 10 and 11) overlapped after being coded into electronic format on the electronic questionnaire and these items were discarded. The researcher decided to use the remaining items as a general measure of alexithymia, but not to calculate the sub-scales.

6 Validity

The one-factor solution was extracted to determine if all items measure the same construct (alexithymia). The factor loadings are as per the table below.

Component matrix	
	Component
	Alexithymia
Item 1	0.685
Item 2	0.732
Item 3	0.571
Item 4	0.447
Item 5	0.241
Item 6	0.660
Item 7	0.674
Item 8	0.374
Item 9	0.682
Item 12	0.553
Item 13	0.686
Item 14	0.619
Item 15	0.282
Item 16	0.191
Item 17	0.493
Item 18	-0.105
Item 19	0.339
Item 20	-0.268

Extraction method: Principal component analysis

One component extracted

Red shading indicates items that load at 0.30 on the single factor r.

Items 18 and 20 loaded negatively on to the single factor, indicating the measurement of something inconsistent with the general theme of the questionnaire. These two items were discarded (together with items 10 and 11) in the calculation of a general alexithymia score.

7 Reliability

The reliability of the TAS was calculated, (after items 10, 11, 18 and 20 had been discarded, as discussed under *validity* above) based on the internal consistency as indicated by the Cronbach alpha.

	Reconstructed alexithymia scale
Number of items	16
Number of cases	601
Cronbach alpha	0.82

A Cronbach alpha value of 0.82 is satisfactory for research purposes and thus indicated a high level of internal consistency (and therefore the possibility of repeatability).

8 Emotional intelligence scale development

The one-factor solution was extracted to determine if all the items measure the same construct (emotional intelligence). The factor loadings are shown in the table below.

9 Factor analysis

Component matrix	
	Component emotional intelligence
Item 01	-0.597
Item 02	-0.402
Item 03	0.411
Item 04	0.134
Item 05	0.647
Item 06	-0.538
Item 07	-0.420
Item 08	0.219
Item 09	0.473
Item 10	0.442
Item 11	0.468
Item 12	0.374
Item 13	0.485
Item 14	-0.580
Item 15	0.355
Item 16	0.420
Item 17	-0.523
Item 18	0.301
Item 19	0.496
Item 20	0.514
Item 21	-0.750
Item 22	0.467
Item 23	0.324
Item 24	-0.034
Item 25	0.487
Item 26	0.605
Item 27	0.535
Item 28	0.516
Item 29	-0.684
Item 30	-0.622
Item 31	-0.708

Extraction method: Principal component analysis

One component extracted.

Red shading indicates items that loaded < 0 on the single factor.

Of the 31 items in the original scale, 11 loaded very weakly or negatively on to the single factor, indicating that the scale did not measure in the same way as the common *theme* of the questionnaire.

10 Item analysis

The 31 items of the emotional intelligence measurement instrument were correlated with the measures of alexithymia and personality to determine which items loads negatively with alexithymia and weak to moderately with personality. The correlation matrix is provided below.

Correlations		TAS16	N	E	O	A	C
Item 1	Pearson correlation	-0.400**	-0.339**	0.244**	-0.046**	0.395**	-0.015
	Sig. (2-tailed)	0.000	0.000	0.000	0.245	0.000	0.695
	N	649	650	649	647	649	650
Item 2	Pearson correlation	-0.285**	-0.209**	0.118**	-0.019	0.206**	0.056
	Sig. (2-tailed)	0.00	0.00	0.00	0.63	0.00	0.15
	N	646	647	646	644	646	647
Item 3	Pearson correlation	0.256**	0.219**	-0.207**	-0.034	-0.149**	-0.050
	Sig. (2-tailed)	0.000	0.000	0.000	0.386	0.000	0.209
	N	644	644	644	644	644	644
Item 4	Pearson correlation	0.124**	-0.008	-0.118**	-0.047	-0.074	-0.235**
	Sig. (2-tailed)	0.002	0.834	0.003	0.239	0.060	0.000
	N	641	641	640	640	641	641
Item 5	Pearson correlation	0.395**	0.310**	-0.278**	0.107**	-0.367**	-0.027
	Sig. (2-tailed)	0	0	0	0.006	0	0.491
	N	648	648	647	647	648	648
Item 6	Pearson correlation	-0.331**	-0.329**	0.236**	-0.057	0.347**	0.008
	Sig. (2-tailed)	0	0	0	0.15	0	0.844
	N	646	647	646	644	646	647
Item 7	Pearson correlation	-0.208**	-0.179**	0.139**	-0.111**	0.447**	-0.071
	Sig. (2-tailed)	0	0	0	0.005	0	0.07
	N	647	647	646	645	647	647
Item 8	Pearson correlation	0.266**	0.037	-0.101*	-0.211**	-0.113**	-0.164**
	Sig. (2-tailed)	0	0.353	0.01	0	0.004	0
	N	643	643	642	642	643	643
Item 9	Pearson correlation	0.215**	0.188**	-0.228**	0.060	-0.309**	0.028
	Sig. (2-tailed)	0	0	0	0.131	0.000	0.476

	N	645	646	646	645	645	646
Item 10	Pearson correlation	0.385**	0.187**	-0.172**	-0.120**	-0.155**	-0.048
	Sig. (2-tailed)	0	0	0	0.002	0	0.221
	N	643	643	643	643	643	643
Item 11	Pearson correlation	0.226**	0.187**	-0.224**	0.093*	-0.312**	0.000
	Sig. (2-tailed)	0	0	0	0.019	0	0.998
	N	644	645	644	643	644	645
Item 12	Pearson correlation	0.323**	0.235**	-0.179**	-0.089*	-0.170**	-0.071
	Sig. (2-tailed)	0	0	0	0.025	0	0.074
	N	641	641	641	640	641	641
Item 13	Pearson correlation	0.227**	0.203**	-0.250**	0.131**	-0.414**	0.021
	Sig. (2-tailed)	0	0	0	0.001	0	0.59
	N	648	648	647	647	648	648
Item 14	Pearson correlation	-0.325**	-0.345**	0.293**	0.024	0.354**	0.074
	Sig. (2-tailed)	0	0	0	0.54	0	0.062
	N	646	646	645	645	646	646
Item 15	Pearson correlation	0.339**	0.131**	-0.109**	-0.195**	-0.121**	-0.104**
	Sig. (2-tailed)	0	0.001	0.005	0	0.002	0.008
	N	643	643	642	642	642	643
Item 16	Pearson correlation	0.218**	0.245**	-0.174**	0.030	-0.381**	0.017
	Sig. (2-tailed)	0	0	0	0.45	0	0.673
	N	644	644	643	643	644	644
Item 17	Pearson correlation	-0.199**	-0.276**	0.221**	-0.074	0.407**	0.057
	Sig. (2-tailed)	0	0	0	0.06	0	0.15
	N	645	645	644	644	645	645
Item 18	Pearson correlation	0.261**	0.169**	-0.150**	-0.118**	-0.151**	-0.140**
	Sig. (2-tailed)	0	0	0	0.003	0	0
	N	635	635	634	634	635	635
Item 19	Pearson correlation	0.276**	0.378**	-0.137**	-0.008	-0.239**	-0.057
	Sig. (2-tailed)	0	0	0	0.848	0	0.15
	N	639	639	639	639	639	639
Item 20	Pearson correlation	0.327**	0.259**	-0.221**	0.032	-0.407**	0.061
	Sig. (2-tailed)	0	0	0	0.417	0	0.125
	N	642	642	641	641	642	642
Item 21	Pearson correlation	0.087*	-0.111**	0.068	-0.212**	0.113**	0.030
	Sig. (2-tailed)	0.029	0.005	0.085	0	0.004	0.45
	N	633	633	633	633	633	633
Item 22	Pearson correlation	0.262**	0.250**	-0.286**	0.061	-0.258**	-0.042
	Sig. (2-tailed)	0.000	0.000	0.000	0.124	0.000	0.291
	N	641	641	641	641	641	641
Item 23	Pearson correlation	0.335**	0.133**	-0.124**	-0.156**	-0.174**	-0.086*
	Sig. (2-tailed)	0.000	0.001	0.002	0.000	0.000	0.029
	N	638	638	638	638	638	638
Item 24	Pearson correlation	-0.104**	-0.075	-0.105**	0.142**	-0.154**	0.055
	Sig. (2-tailed)	0.008	0.056	0.008	0.000	0.000	0.165

	N	642	642	640	640	641	642
Item 25	Pearson correlation	0.523**	0.272**	-0.136**	-0.135**	-0.199**	-0.131**
	Sig. (2-tailed)	0.000	0.000	0.001	0.001	0.000	0.001
	N	638	638	638	638	638	638
Item 26	Pearson correlation	0.273**	0.336**	-0.168**	0.037	-0.347**	-0.076
	Sig. (2-tailed)	0.000	0.000	0.000	0.349	0.000	0.056
	N	642	642	641	641	642	642
Item 27	Pearson correlation	0.350**	0.303**	-0.201**	-0.048	-0.196**	-0.166**
	Sig. (2-tailed)	0.000	0.000	0.000	0.225	0.000	0.000
	N	645	645	644	644	645	645
Item 28	Pearson correlation	0.240**	0.298**	-0.208**	0.000	-0.270**	-0.105**
	Sig. (2-tailed)	0.000	0.000	0.000	0.996	0.000	0.008
	N	645	645	645	645	645	645
Item 29	Pearson correlation	-0.346**	-0.423**	0.195**	-0.008	0.330**	0.147**
	Sig. (2-tailed)	0.000	0.000	0.000	0.845	0.000	0.000
	N	643	644	644	643	643	644
Item 30	Pearson correlation	-0.299**	-0.353**	0.258**	-0.082*	0.387**	0.114**
	Sig. (2-tailed)	0.000	0.000	0.000	0.037	0.000	0.004
	N	645	645	645	644	645	645
Item 31	Pearson correlation	-0.370**	-0.452**	0.227**	-0.065	0.369**	0.078*
	Sig. (2-tailed)	0.000	0.000	0.000	0.098	0.000	0.047
	N	643	644	644	642	643	644
TAS16	Pearson correlation	1	0.386**	-0.332**	-0.217**	-0.302**	-0.160**
	Sig. (2-tailed)	.	0.000	0.000	0.000	0.000	0.000
	N	655	655	653	652	654	655
N	Pearson correlation	0.386**	1	-0.290**	0.013	-0.330**	0.062
	Sig. (2-tailed)	0.000	.	0.000	0.742	0.000	0.111
	N	655	656	654	652	654	656
E	Pearson correlation	-0.332**	-0.290**	1	0.012	0.297**	0.091*
	Sig. (2-tailed)	0.000	0.000	.	0.758	0.000	0.020
	N	653	654	654	652	653	654
O	Pearson correlation	-0.217**	0.013	0.012	1	-0.100*	0.133**
	Sig. (2-tailed)	0.000	0.742	0.758	.	0.011	0.001
	N	652	652	652	652	652	652
A	Pearson correlation	-0.302**	-0.330**	0.297**	-0.100*	1	-0.046
	Sig. (2-tailed)	0.000	0.000	0.000	0.011	.	0.244
	N	654	654	653	652	654	654
C	Pearson correlation	-0.160**	0.062	0.091*	0.133**	-0.046	1
	Sig. (2-tailed)	0.000	0.111	0.020	0.001	0.244	.
	N	655	656	654	652	654	656

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Green shading indicates correlations in the expected direction and range.

Red shading indicates correlations in the incorrect direction or range.

From the above it is clear that nine of the items indicated negative loadings on to the single factor solution, correlated negatively with alexithymia, negatively with neuroticism and positively with extroversion, and were therefore presumably emotional intelligence items. The bulk of the questionnaire did not correlate in the expected range or direction with the afore-mentioned and were therefore unsuitable as emotional intelligence question items. The 11 items with negative factor loadings on to the single factor therefore did not cluster with the non-emotional intelligence question items (bulk of the questionnaire) and were therefore retained.

Based on the absence of a factor loading in the single factor analysis above (section 9) the decision was taken to discard item 24, despite the negative correlation with the alexithymia scale. The absence of a loading on to the single factor indicates that the item did not measure the same as the others (which presumably measure emotional intelligence).

The nine items, as indicated above, were retained and further analysed.

11 Validity

Based on the item analysis, the nine items selected were used in a principal components analysis. See the component matrix below.

Component matrix	
	Component
	Emotional intelligence
Item 1	0.694
Item 2	0.502
Item 6	0.568
Item 7	0.437
Item 14	0.610
Item 17	0.549
Item 29	0.751
Item 30	0.723
Item 31	0.802

Extraction method: Principal component analysis

One component extracted.

All the items load strongly on to the single factor. As discussed above the single factor may be assumed to be emotional intelligence.

12 Reliability

The reliability of the emotional intelligence scale is reported below, based on internal consistency as indicated by Cronbach's alpha.

	Emotional intelligence scale
Number of items	9
Number of cases	628
Cronbach alpha	0,80

The reliability (α = 0.80) of the emotional intelligence scale, when it is considered that it only consists of nine items, is excellent for research purposes.

13 Correlations between the Big Five, TAS-20 and emotional intelligence scales

Correlations

		GEIS	TAS16	N	E	O	A	C
GEIS	Pearson correlation	1	-0.419**	-0.482**	0.323**	-0.118**	0.589**	0.010
	Sig. (2-tailed)	.	0.000	0.000	0.000	0.003	0.000	0.794
	N	653	652	653	652	650	652	653
TAS16	Pearson correlation	-0.419**	1	0.386**	-0.332**	-0.217**	-0.302**	-0.160**
	Sig. (2-tailed)	0.000	.	0.000	0.000	0.000	0.000	0.000
	N	652	655	655	653	652	654	655
N	Pearson correlation	-0.482**	0.386**	1	-0.290**	0.013	-0.330**	0.062
	Sig. (2-tailed)	0.000	0.000	.	0.000	0.742	0.000	0.111
	N	653	655	656	654	652	654	656
E	Pearson correlation	0.323**	-0.332**	-0.290**	1	0.012	0.297**	0.091*
	Sig. (2-tailed)	0.000	0.000	0.000	.	0.758	0.000	0.020
	N	652	653	654	654	652	653.000	654
O	Pearson correlation	-0.118**	-0.217**	0.013	0.012	1	-0.100*	0.133**
	Sig. (2-tailed)	0.003	0.000	0.742	0.758	.	0.011	0.001
	N	650	652	652	652	652	652	652
A	Pearson correlation	0.589**	-0.302**	-0.330*	0.297**	-0.100*	1	-0.046
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.011	.	0.244
	N	652	654	654	653	652	654	654
C	Pearson correlation	0.010	-0.160**	0.062	0.091*	0.133**	-0.046	1
	Sig. (2-tailed)	0.794	0.000	0.111	0.020	0.001	0.244	.
	N	653	655	656	654	652	654	656

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Green shading indicates correlations in the expected range and direction.

It should be noted that the emotional intelligence scale was developed to correlate negatively with the reconstructed measure of alexithymia, and moderately with the personality sub-scales (although negatively with neuroticism and positive with extroversion). The above correlations were therefore merely provided as a check and did not provide any surprises.

Emotional intelligence did correlate in the expected direction with regard to alexithymia, neuroticism and extroversion. The magnitude of the correlation with

alexithymia was small, indicating that alexithymia and emotional intelligence are not different ends of the same continuum.

The small effect size obtained for neuroticism and extroversion was expected, given the tendency for trait emotional intelligence measures correlating higher with personality measures than ability measures. Of primary importance is the fact that no strong correlations were found between personality and emotional intelligence measures. It could therefore be accepted that the constructed emotional intelligence scale is not a measure of personality (e.g. a sub-scale).

ANNEXURE 3: PILOT STUDY 1B: REVIEW AND REVALIDATION OF THE EMOTIONAL INTELLIGENCE MEASUREMENT MODEL (GEIS V1.2)

From the pilot study 1A: Validation of the emotional intelligence measurement model, it was of concern that the final measurement model was only left with nine items. The integration model of emotional intelligence also concluded that the following five dimensions consistently show up in emotional intelligence models. They are

- perceiving emotions: self
- perceiving emotions: other
- use of emotions to facilitate thought
- understanding emotions
- managing emotions

The purpose of the second round of validation of the emotional intelligence model was to elaborate on the model to ensure the construct was represented better by adding more items, and to ensure the five dimensions above were represented sufficiently.

1 Sample description

Again a stratified sample of 162 was drawn to represent an organisation in the financial services sector across its different functional areas. The main study was also conducted in the same organisation.

2 Measurement instrument

The nine emotional intelligence items remaining from the first round of validation was retained and more items were added to represent the following five dimensions:

- perceiving emotions: self
- perceiving emotions: other
- use of emotions to facilitate thought
- understanding emotions
- managing emotions

This scale was labelled the Gerber Emotional Intelligence scale, version 1.2, or GEIS v1.2.

3 Validity

The revised instrument (GEIS v1.2) was made available to respondents in pencil-and-paper format only. This was done to gain greater control over the administration conditions than was the case during the first round of validation (when the instrument was administered electronically).

Questions and feedback to the researcher from the respondents during the first round of validation led the researcher to be more critical of the possibility that the personality and alexithymia questions might have influenced the responses to the emotional intelligence scale during the first round of validation.

It was decided that new items that cluster together with the initial nine (which correlated moderately low with personality and strongly negatively with alexithymia) during factor analysis would have the same characteristics and would be retained in the final model. Following this argument, it was unnecessary

to run the three assessments concurrently and more control could be obtained over the administration of the instrument.

KMO and Bartlett's test		
Kaiser-Meyer-Olkin measure of sampling adequacy.		0.803
Bartlett's test of sphericity	Approx. chi-square	2724.334
	Df	780
	P	0.000

Although the rule of five prescribes a minimum sample size of 200 (5 x 40 items), the KMO indicated that the sample was adequate for factor analysis. The sample was well over the minimum absolute size of 100 and it appeared to be sufficient.

Bartlett's test of sphericity indicated that the assessment results were not densely intercorrelated and that the data was suitable for factor analysis.

Component matrix		
	Component	
	Emotional intelligence	
Item 01	0.480	GEIS item 1
Item 02	0.421	GEIS item 2
Item 03	0.438	GEIS item 6
Item 04		
Item 05	0.463	
Item 06	0.215	
Item 07	0.187	
Item 08	0.439	
Item 09	0.606	GEIS item 14
Item 10	0.590	GEIS item 17
Item 11	0.542	
Item 12	0.447	
Item 13	0.511	
Item 14	-0.376	
Item 15	0.610	
Item 16	0.566	
Item 17	0.566	
Item 18	0.441	GEIS item 7
Item 19	0.497	

Item 20	0.442	
Item 21	0.323	
Item 22	0.513	
Item 23	0.522	
Item 24	0.561	
Item 25	0.469	
Item 26	0.459	
Item 27	0.549	
Item 28	0.381	
Item 29	0.530	
Item 30	0.460	
Item 31	0.517	
Item 32		
Item 33	0.459	
Item 34	0.411	
Item 35	0.617	GEIS item 31
Item 36	0.637	GEIS item 29
Item 37	0.649	GEIS item 30
Item 38		
Item 39	0.459	
Item 40	0.586	

Extraction method: Principal component analysis.

1 component extracted.

Red shading indicates factor loadings < 0.3 on the single factor.

The single factor solution was used for a dual purpose: Firstly, to check if items loaded on to the same factor as the initial nine items (GEIS Items indicated in the above table); and secondly items which loaded lower than 0.2 were discarded to ensure strong validity of the final instrument. The items deleted during this round were highlighted above.

During subsequent rounds of factor analysis, more items were discarded on the basis of weak loadings on to the expected factor, and/or too strong factor loadings on to unexpected (incorrect) factors. During this process, two of the initial nine items were also discarded, because although they are undoubtedly strong emotional intelligence measures, they loaded too strongly on to more than one factor. The end result was a questionnaire with 26 items and five distinct dimensions.

Interestingly, with the unwanted items discarded, the rule of five (5 x 26 items = 130) was satisfied in that the sample size was 162. Unwanted cross- loadings between factors were therefore highly unlikely to be attributed to sampling shortfalls.

Because some items were removed from the initial scale, the KMO and Bartlett's pre-tests were redone.

KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.801
Bartlett's test of sphericity	Approx. chi-square	1711.492
	Df	325
	P	0.000

As expected, the KMO and Bartlett's test of sphericity were satisfied as prerequisites for factor analysis.

Because the questionnaire was designed to measure five dimensions of emotional intelligence, a five-factor solution on a promax-rotated factor analysis was done. The factor analysis yielded the following results:

Pattern matrix

	Component				
	Understanding emotions (UE)	Managing emotions (ME)	Perceiving emotions: Other (PEO)	Use of emotions to facilitate thought (UOE)	Perceiving emotions: Self (PES)
Item 01	0.116		-0.117		0.761
Item 02	-0.163		0.114		0.809
Item 03			-0.138		0.812
Item 05					0.664
Item 11	0.182			0.516	0.129
Item 12				0.800	
Item 13				0.917	
Item 16	-0.132		0.115	0.800	
Item 17		0.135	0.713		0.131
Item 18	-0.172	0.147	0.654	0.144	-0.128
Item 19			0.767		
Item 20	0.132	-0.237	0.583	0.182	
Item 21			0.540	-0.128	
Item 23	0.127		0.664		
Item 25	0.454		0.144		0.103
Item 26	0.665				
Item 27	0.689		0.208		
Item 28	0.838		-0.145		-0.150
Item 29	0.574		0.230		
Item 30	0.838		-0.180		
Item 31	0.627				
Item 34	0.233	0.665	-0.113		
Item 35		0.837			
Item 36		0.803			0.177
Item 39		0.721	0.128		
Item 33		0.845			-0.102

Extraction method: Principal component analysis

Rotation method: Promax with Kaiser normalisation

Rotation converged in six iterations.

Green shading indicates the item loadings on the expected factor

Five clearly distinguishable factors crystallised from the factor analysis. The dimensions *"use of emotions to facilitate thought"* and "*perceiving emotions : self*" only had four items loading on to them and did not satisfy the rule of five. According to this rule, a factor only exists if one can identify five items loading on

to it. Although the items loaded very strongly on to these two dimensions, it was recommended that additional items be written to add to them before conducting the main research. The other factors had strong item loadings and the dimensions of *understanding emotions* and *perceiving emotions: other* had more than five items, but some of them could be removed to shorten the questionnaire if required.

4 Reliability

The internal consistency reliability of the above model was indicated by the Cronbach alpha. The values were calculated below.

Scale	Cronbach alpha	Number of items
Perceiving emotions: Self	0.730	4
Perceiving emotions: Other	0.744	6
Use of emotions to facilitate thought	0.783	4
Understanding emotions	0.826	7
Managing emotions	0.845	5
Overall (GEIS v1.2)	0.868	26

The reliability of the dimensions individually and as a whole were satisfactory. On the basis of the Cronbach alpha value of the dimension of perceiving emotions: other, it was not recommended that the item be reduced because this dimension would likely have the lowest reliability when the smaller dimensions were increased.

Overall, this measurement instrument has the potential to deliver valid and reliable measures of emotional intelligence. It was recommended that additional items be added to the dimensions of *use of emotions to facilitate thought* and *perceiving emotions: self* before conducting the main research.

ANNEXURE 4: PILOT STUDY 2: VALIDATION OF THE ORGANISATIONAL CLIMATE MEASUREMENT MODEL (HPCQ V1.2)

1 Sample description

A stratified sample was drawn to represent an organisation in the financial services sector across its different functional areas. The same organisation used for the pilot study for the development and validation of the emotional intelligence measurement instrument was used during the validation of the organisational climate measurement instrument as well as the main study.

The organisational climate questionnaire was administered electronically and the sample size was 1 327.

2 Measurement instrument

The High Performance Climate Questionnaire (HPCQ v1.1) (Gerber, 2005) was updated and validated for the purposes of measurement of the organisation's climate. The instrument was referred to in section 3.7.1.1. As recommended, three additional dimensions were added in order to deliver more balanced measurements in respect of the competing values framework. The additions changed the dimensional structure, in terms of representing the competing values framework, as follows:

	Gerber (2005)	Revised model
HR	Involvement/empowerment Teamwork Overall satisfaction Retention Individual importance Employee training	Involvement/empowerment Teamwork Overall satisfaction Retention Individual importance Employee training
Open systems	Client services orientation	Client services orientation **Change and adaptability *** **Creativity and innovation ***
Rational goals	Goals and objectives Vision Values Diversity	Goals and objectives Vision Values Diversity
Internal process	Managerial leadership Quality emphasis	Managerial leadership Quality emphasis **Communication ***

The objective was therefore to expand the existing instrument to the extent that each of the four models of the competing values framework was represented by at least three dimensions. This was attempted by designing and including the dimensions of *change and adaptability*, and *creativity and innovation* to support the *open systems model*. In order to represent the *internal process model* better, the dimension "*communication"* was designed and included.

3 Validity

The factorial validity of the instrument was demonstrated by means of exploratory factor analysis and construct validity was demonstrated using correlations with the organisational outcomes client satisfaction, work motivation and work performance.

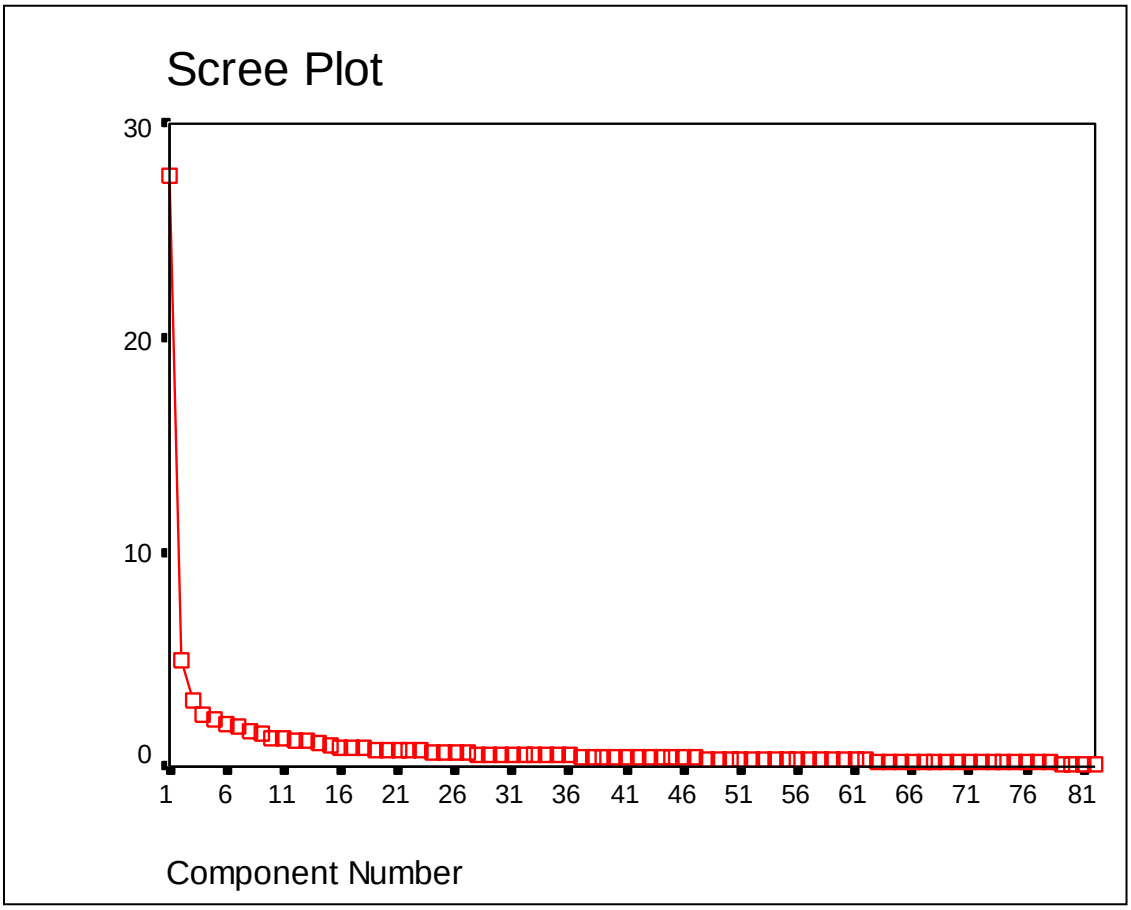
The statistical procedure of exploratory factor analysis was chosen above confirmatory factor analysis to provide the researcher with information about the relationship between the newly developed items and the existing items (i.e. factor loadings). During the main study, the new model was tested by means of confirmatory factor analysis. This procedure produced better conclusive evidence about the factorial structure of the measurement model.

The Kaiser-Meyer-Olkin measure of sampling adequacy was high and therefore indicated that the sample was adequate to allow for the use of the statistical procedure of exploratory factor analysis. The Bartlett test of sphericity indicated that the data obtained was highly unlikely to be an identity matrix (p = 0.00) and therefore suitable for exploratory factor analysis.

KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.968
Bartlett's test of sphericity	Approx. chi-square	57835.65
	Df	3321
	p	0.000

The questionnaire was revised to measure 16 dimensions of organisational climate. From inspection of the scree plot below, it was somewhat inconclusive about the suggested number of factors to extract, although there appears to be a “scree” at about 15.



First, one factor was extracted. All the items loaded on to the one-factor solution with a mean factor loading of 0.574. It was therefore clear that the scale items measured the same construct. Since the questionnaire was designed to measure organisational climate, it could be assumed that all the items indeed measured *organisational climate*.

Component matrix	**Component**
	Organisational climate
Item 03	0.639
Item 04	0.646
Item 05	0.631
Item 06	0.492
Item 07	0.627
Item 08	0.441
Item 09	0.437
Item 10	0.519
Item 11	0.584
Item 12	0.601
Item 13	0.544
Item 14	0.531
Item 15	0.563
Item 16	0.459
Item 19	0.564
Item 20	0.500
Item 21	0.644
Item 22	0.470
Item 23	0.607
Item 24	0.555
Item 25	0.564
Item 26	0.550
Item 27	0.510
Item 28	0.591
Item 29	0.261
Item 30	0.521
Item 31	0.442
Item 32	0.541
Item 33	0.533

Item 34	0.502
Item 35	0.612
Item 36	0.492
Item 37	0.535
Item 38	0.543
Item 39	0.518
Item 40	0.570
Item 42	0.523
Item 43	0.632
Item 44	0.625
Item 45	0.561
Item 46	0.695
Item 47	0.477
Item 48	0.599
Item 49	0.430
Item 50	0.666
Item 51	0.650
Item 52	0.592
Item 53	0.647
Item 55	0.657
Item 56	0.627
Item 57	0.643
Item 58	0.512
Item 59	0.546
Item 60	0.574
Item 61	0.534
Item 62	0.633
Item 63	0.588
Item 64	0.617
Item 65	0.685
Item 66	0.598
Item 67	0.666
Item 68	0.680
Item 69	0.552
Item 71	0.546
Item 75	0.388
Item 76	0.574
Item 77	0.634
Item 78	0.581
Item 79	0.671
Item 80	0.664
Item 81	0.586
Item 82	0.600
Item 83	0.578
Item 84	0.587

Item 85	0.587
Item 86	0.687
Item 87	0.607
Item 88	0.649
Item 89	0.684
Item 90	0.740
Item 91	0.593
Item 93	0.574

Extraction method: Principal component analysis

One component extracted

Because the questionnaire was adapted and constructed to measure 16 different dimensions, 16 factors were extracted during the second round of factor analysis. This solution did not provide support for a 16-factor structure of the High Performance Climate Questionnaire and a 16-factor structure therefore appeared to deliver invalid results.

A 15-factor solution provided better results. Evidence of 15 dimensions was clearly visible. One factor, labelled *"vision, mission and values"* represented two factors ("*vision and mission"*, and "*values"*) of its predecessor's structure, collapsed into one dimension. Interestingly, the two factors were clustered into the same model of the competing values theory, namely the *relational goals* model.

Besides the two factors that collapsed, three other dimensions raised some concern. Satisfaction and creativity and innovation were (strongly) supported by only four items, and needed to be measured by at least five. The dimension labelled "diversity" was only supported by three items and needed to be reworked to have at least five items loaded on to it and not on to the other factors.

The above issues originated from the addition of the three new dimensions, more specifically as a result of the interaction between the new items, measuring creativity and innovation, change and communication.

Given the newly identified issues with the measurement model of organisational climate, it could safely be argued that if they were addressed adequately prior to the application in the main study, the model would not pose any real measurement risks.

Pattern matrix

Items	Component														
	Vision, mission and values	Communication	Empowerment	Teamwork	Training	Goals	Client service	Management	Individual concern	Change & adaptability	Retention	Quality emphasis	Satisfaction	Creativity & innovation	Diversity
Item 03			0.736												
Item 04			0.755												
Item 05			0.743			0.144			-0.124						
Item 06			0.938			-0.131								-0.114	
Item 07			0.818												
Item 08			0.852			-0.188		-0.156	0.267			0.141			
Item 09	0.123				0.419	0.327		-0.100					-0.104	-0.136	
Item 10					0.927										
Item 11					0.915										
Item 12					0.928										
Item 13			-0.109		0.865				0.126						
Item 14		0.257	0.114		0.303	0.111		-0.212		0.239				-0.130	
Item 15			0.114		0.120								0.672		
Item 16												-0.119	0.910		
Item 19				0.507				0.184					0.297		
Item 20						-0.124		-0.116		-0.118			0.835		
Item 21			0.148	0.295				0.367		-0.133					-0.117
Item 22				0.786										-0.180	0.209

Item 23				0.798											
Item 24				0.680									-0.124	0.138	
Item 25				0.814										0.142	
Item 26									0.109	-0.117	0.847				
Item 27			-0.116						0.135		0.885				
Item 28										0.135	0.764				
Item 29		-0.172	0.107		-0.131			-0.200	-0.161		0.693	0.230			
Item 30	-0.111	0.210						-0.112	-0.167	0.306	0.377				
Item 31		-0.131							0.585	0.192				0.108	0.121
Item 32			0.170	0.267					0.450					0.173	
Item 33									0.649	0.208					
Item 34						0.105			0.711				-0.135		
Item 35	0.224	0.132				0.115			0.561			-0.115	0.172		
Item 36	0.201	-0.130					0.656		0.177	-0.178					
Item 37		-0.127					0.872			0.104					
Item 38							0.785			0.118					
Item 39		0.220				0.113	0.732	-0.105							
Item 40							0.862								
Item 42			-0.109	0.347		0.114	-0.112		0.159	0.538	-0.159		0.104		0.150
Item 43									0.218	0.830		0.107		-0.108	
Item 44									0.215	0.926				-0.100	
Item 45										0.910		-0.145			
Item 46			0.138							0.400				0.298	

Item 47				-		-								
				0.112		0.135		0.387		0.127	0.145	0.575	0.129	
Item 48													-	
						0.110				0.205		0.607	0.147	
Item 49									-	-	-			
				0.109				0.141	0.179	0.173	0.124	0.830		
Item 50			0.201						0.224		0.104	0.439		
Item 51				-										
				0.113		0.678					0.125			
Item 52						0.892		0.125						
Item 53						0.735				0.191				
Item 55														
			0.105			0.573		0.110	0.174		0.135		0.144	
Item 56										-				
						0.885			0.164	0.177				
Item 57				-						-				
			0.102			0.756				0.109	0.208			
Item 58								-		-				
	0.726							0.139		0.166	0.122			
Item 59								-	-					
	0.573							0.143	0.221		0.254			
Item 60								-	-					
	0.821							0.111	0.152		0.151			
Item 61								-	-					
	0.540				0.167			0.119	0.206				0.321	
Item 62									-					
	0.492					0.102			0.132	0.149			0.118	
Item 63	0.960													
Item 64	0.964													
Item 65	0.847													
Item 66	0.859								0.151					
Item 67	0.784								0.152	0.118				
Item 68	0.613							0.106		0.140				
Item 69		-										-		
		0.117	0.116	0.106		0.147						0.123		0.672
Item 71								0.290		0.104				0.566
Item 75		0.108							0.106	-				0.832

									0.128						
Item 76		-0.107		0.268			0.692				0.119				
Item 77							0.781				0.127				
Item 78							0.790								0.122
Item 79		0.120					0.651	-0.112	0.250			0.104			
Item 80		0.198					0.535	-0.107	0.201						
Item 81		0.893				-0.110							0.129		
Item 82		0.843	-0.101						-0.215				0.142		
Item 83		0.775				0.118	-0.119			-0.106					
Item 84		0.753	0.101			0.111						0.102			
Item 85		0.810	0.100												
Item 86		0.680			0.119		0.132								
Item 87						0.161			-0.120	0.119	0.747				
Item 88				-0.141			0.180				0.742				
Item 89	0.141			-0.126				0.261			0.548				
Item 90		0.159			0.103		0.306				0.498				
Item 91				0.192				-0.114	0.303		0.584		-0.160		
Item 93					0.116			-0.106			0.731			-0.138	

Extraction method: Principal component analysis
Rotation method: Promax with Kaiser normalisation
Rotation converged in nine iterations.
Green shading indicates item loadings on to the intended factors.

From the literature study, it is clear (specifically through linkage research) that there is a strong link between organisational climate and organisational performance. In the questionnaire, the respondents were also asked to rate each of the following (a perception rating) for their direct work team:

- client service
- work motivation
- productivity

In order to demonstrate content validity, the instrument in its totality and each dimension were correlated with the above perception ratings. The correlations are shown below.

Correlations		**Perception rating of:**		
		Client service	**Work motivation**	**Productivity**
Total climate	Pearson correlation	**0.395**	**0.540**	**0.437**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Empowerment	Pearson correlation	0.213	0.428	0.260
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Teamwork	Pearson correlation	0.345	0.471	0.389
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Satisfaction	Pearson correlation	0.290	0.432	0.339
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Retention	Pearson correlation	0.214	0.392	0.296
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Individual	Pearson correlation	0.251	0.319	0.289
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1245	1245	1244
Training	Pearson correlation	0.235	0.375	0.277
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245

Client service	Pearson correlation	0.354	0.297	0.298
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1245	1245	1244
Change and adaptability	Pearson correlation	0.280	0.395	0.335
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1244	1244	1243
Creativity and innovation	Pearson correlation	0.298	0.367	0.312
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1242	1242	1241
Goals	Pearson correlation	0.319	0.424	0.360
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1243	1243	1242
Vision, mission & values	Pearson correlation	0.305	0.315	0.292
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1246	1246	1245
Diversity	Pearson correlation	0.258	0.320	0.281
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1241	1241	1240
Management	Pearson correlation	0.297	0.476	0.339
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1241	1241	1240
Communication	Pearson correlation	0.268	0.372	0.259
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1242	1242	1241
Quality	Pearson correlation	0.368	0.438	0.404
	Sig. (2-tailed)	0.000	0.000	0.000
	N	1242	1242	1241

All correlations are significant at the 0.01 level (2-tailed).

The total climate score correlated in the moderate range with the perception measures of client service, work motivation and productivity. This is consistent with the theory. Interestingly, Gerber (2003) reported a correlation between organisational climate and work motivation of 0.549, utilising different scales than those used in the present research for both constructs, but in the same population a few years before.

From inspection of the table it is clear that the dimensions *quality* and *teamwork* delivered consistently higher correlations with the performance perception ratings than the other climate dimensions. Similarly, *diversity* and *individual* consistently delivered the lowest correlations with performance perception ratings than the other climate dimensions. Viewed in the light of the discussion on the factorial structure of the questionnaire, one can recall the sub-scale for diversity delivered some measurement problems and that only three items were retained for its measurement. More development was required for this sub-scale before any meaningful interpretation of its results could take place.

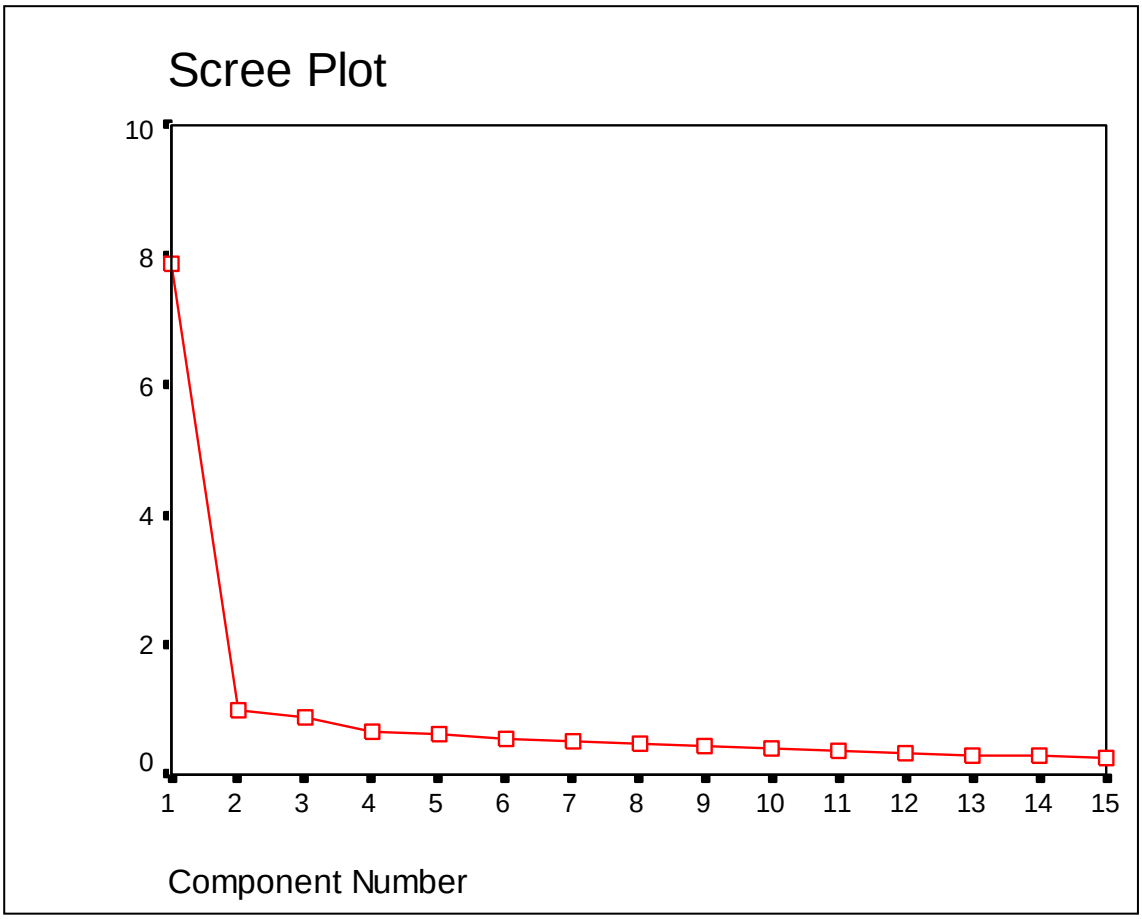
Before the reliability of the scale is discussed, the higher-order structure of the instrument is investigated.

Again the KMO and Bartlett pre-analysis were done to determine if the higher-order data was suitable for factor analysis. The KMO measure indicated the sample was adequate to allow for the procedure of factor analysis to be done. The Bartlett measure indicated that the data was not an identity matrix (p = 0.000) and that it allowed for an analysis on that level.

KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.953643
Bartlett's test of sphericity	Approx. chi-square	11185.13
	Df	105
	P	0.000

Although the climate dimensions were clustered into the four competing values models, the scree plot suggested a likely number of factors to extract optimally. From inspection of the scree plot, it appeared as if two or possibly three factors could be extracted.



The result that could be interpreted best was obtained from a three-factor solution. The pattern matrix is provided below.

Pattern matrix

	Component		
	Execution	**Strategic alignment**	**Organisational outcomes**
	(Internal process and rational goals models)	(Open systems, strategy and alignment with HR)	(HR model)
Communication	0.836		
Management	0.781		0.193
Diversity	0.704	0.154	-0.115
Empowerment	0.527		0.435
Goals	0.387	0.305	0.244
Vision, mission and values		0.847	
Client services	0.257	0.772	-0.296
Individual	-0.379	0.750	0.444
Change	0.232	0.570	
Creativity and innovation	0.145	0.551	0.221
Quality	0.427	0.528	
Satisfaction			0.922
Teamwork	0.214		0.609
Training	0.479	-0.172	0.502
Retention	0.122	0.258	0.393

Extraction method: Principal component analysis

Rotation method: Promax with Kaiser normalisation

Rotation converged in 12 iterations.

Green shading indicates item loadings on the expected factors.

From the above pattern matrix, it is clear that the climate dimensions did not group together around the four distinct models of the competing values theory, and the two factors of Wiley and Brooks did not emerge. Instead, some hybrid model between Wiley and Brooks and competing values emerged which provided partial support for both models.

This result (the emergence of a hybrid model) is not surprising, given the fact that the questionnaire has its origin in the framework of the Wiley and Brooks model, and was subsequently adapted within the competing values framework. Because both models are organisational effectiveness models, they are indeed compatible,

and the above provides an empirically derived solution to the integration of the different paradigms.

4 Reliability

The internal consistency reliability of the High Performance Climate Questionnaire version 1.2 was indicated in the section on the Cronbach alpha below.

Scale	Cronbach alpha	Number of items
Empowerment	0.872	6
Training	0.862	6
Satisfaction	0.802	4
Change	0.806	4
Teamwork	0.849	5
Retention	0.805	5
Individual	0.833	5
Client service orientation	0.870	5
Creativity	0.779	5
Goals and objectives	0.873	6
Vision, mission and values	0.932	11
Diversity	0.707	3
Management	0.873	5
Communication	0.886	6
Quality	0.873	6
Total scale (HPCQ v1.2)	0.975	82

The Cronbach alpha value increased after revision from 0.967 to 0.975. This increase, albeit small, may be the result of better internal consistency achieved owing to a better, more encompassing measurement of organisational climate. This argument is stronger when it is considered that the sample size of this validation study was almost half of the previous validation study and that internal consistency may be easier to achieve and demonstrate with larger sample sizes.

Overall, this model had great potential to deliver valid and reliable measurements of organisational climate during the main research. It was recommended that the dimensions *satisfaction*, *change* and *diversity* be increased to have at least five items each prior to use in the main research.

ANNEXURE 5: THE GERBER EMOTIONAL INTELLIGENCE SCALE (GEIS V1.3)

Gerber Emotional Intelligence Scale (GEIS v1.3)

The GEIS v1.3 questionnaire was included for examination but is removed in this copy.

If you are interested in utilizing the instrument you are welcome to contact the author at the following details:

Email: fjgerber@iafrica.com / cobusgerber100@gmail.com
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ANNEXURE 6: THE HIGH PERFORMANCE CLIMATE QUESTIONNAIRE (HPCQ v1.3)

High Performance Climate Questionnaire (HPCQ v1.3)

The HPCQ v1.3 questionnaire was included for examination but is removed in this copy.

If you are interested in utilizing the instrument you are welcome to contact the author at the following details:

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ANNEXURE 7: POST HOC SCHEFFÉ TEST FOR ORGANISATIONAL CLIMATE SCORE FOR DIFFERENCES ON THE BASIS OF JOB LEVEL (GRADE)

Job level (grade) (I)	Job level (grade) (J)	Mean difference (I-J)	Std. error	p
0	1	-0.0309	0.3278	1.000
	2	0.8042	0.3278	0.813
	3a	0.7618	0.2771	0.672
	3b	0.2632	0.2706	1.000
	4a	0.4622	0.2667	0.981
	5b	0.3265	0.2654	0.999
	6	0.2661	0.2643	1.000
	7	0.2015	0.2641	1.000
	8a	0.1436	0.3717	1.000
	Unknown	0.2589	0.4292	1.000
1	0	0.0309	0.3278	1.000
	2	0.8351	0.2771	0.524
	3a	0.7927	0.2146	0.191
	3b	0.2941	0.2061	0.996
	4a	0.4932	0.2011	0.814
	5b	0.3575	0.1993	0.976
	6	0.2970	0.1978	0.994
	7	0.2324	0.1976	0.999
	8a	0.1746	0.3278	1.000
	Unknown	0.2899	0.3918	1.000
2	0	-0.8042	0.3278	0.813
	1	-0.8351	0.2771	0.524
	3a	-0.0424	0.2146	1.000
	3b	-0.5410	0.2061	0.736
	4a	-0.3419	0.2011	0.984
	5b	-0.4776	0.1993	0.836
	6	-0.5381	0.1978	0.687
	7	-0.6027	0.1976	0.504
	8a	-0.6605	0.3278	0.944
	Unknown	-0.5453	0.3918	0.997
3a	0	-0.7618	0.2771	0.672
	1	-0.7927	0.2146	0.191
	2	0.0424	0.2146	1.000

	3b	-0.4986*	0.1086	0.021
	4a	-0.2996	0.0987	0.513
	5b	-0.4353*	0.0950	0.022
	6	-0.4957*	0.0919	0.001
	7	-0.5603*	0.0914	0.000
	8a	-0.6182	0.2771	0.892
	Unknown	-0.5029	0.3505	0.996
	0	-0.2632	0.2706	1.000
	1	-0.2941	0.2061	0.996
	2	0.5410	0.2061	0.736
	3a	0.4986*	0.1086	0.021
	4a	0.1991	0.0786	0.779
3b	5b	0.0634	0.0739	1.000
	6	0.0029	0.0698	1.000
	7	-0.0617	0.0692	1.000
	8a	-0.1195	0.2706	1.000
	Unknown	-0.0043	0.3453	1.000
	0	-0.4622	0.2667	0.981
	1	-0.4932	0.2011	0.814
	2	0.3419	0.2011	0.984
	3a	0.2996	0.0987	0.513
	3b	-0.1991	0.0786	0.779
4a	5b	-0.1357	0.0585	0.863
	6	-0.1962	0.0532	0.194
	7	-0.2607*	0.0524	0.006
	8a	-0.3186	0.2667	0.999
	Unknown	-0.2033	0.3424	1.000
	0	-0.3265	0.2654	0.999
	1	-0.3575	0.1993	0.976
	2	0.4776	0.1993	0.836
	3a	0.4353*	0.0950	0.022
	3b	-0.0634	0.0739	1.000
5b	4a	0.1357	0.0585	0.863
	6	-0.0605	0.0460	0.998
	7	-0.1250	0.0450	0.657
	8a	-0.1829	0.2654	1.000
	Unknown	-0.0676	0.3413	1.000
	0	-0.2661	0.2643	1.000
6	1	-0.2970	0.1978	0.994
	2	0.5381	0.1978	0.687

	3a	0.4957*	0.0919	0.001
	3b	-0.0029	0.0698	1.000
	4a	0.1962	0.0532	0.194
	5b	0.0605	0.0460	0.998
	7	-0.0646	0.0380	0.984
	8a	-0.1224	0.2643	1.000
	Unknown	-0.0072	0.3405	1.000
	0	-0.2015	0.2641	1.000
	1	-0.2324	0.1976	0.999
	2	0.6027	0.1976	0.504
	3a	0.5603*	0.0914	0.000
	3b	0.0617	0.0692	1.000
7	4a	0.2607*	0.0524	0.006
	5b	0.1250	0.0450	0.657
	6	0.0646	0.0380	0.984
	8a	-0.0578	0.2641	1.000
	Unknown	0.0574	0.3403	1.000
	0	-0.1436	0.3717	1.000
	1	-0.1746	0.3278	1.000
	2	0.6605	0.3278	0.944
	3a	0.6182	0.2771	0.892
	3b	0.1195	0.2706	1.000
8a	4a	0.3186	0.2667	0.999
	5b	0.1829	0.2654	1.000
	6	0.1224	0.2643	1.000
	7	0.0578	0.2641	1.000
	Unknown	0.1153	0.4292	1.000
	0	-0.2589	0.4292	1.000
	1	-0.2899	0.3918	1.000
	2	0.5453	0.3918	0.997
	3a	0.5029	0.3505	0.996
	3b	0.0043	0.3453	1.000
Unknown	4a	0.2033	0.3424	1.000
	5b	0.0676	0.3413	1.000
	6	0.0072	0.3405	1.000
	7	-0.0574	0.3403	1.000
	8a	-0.1153	0.4292	1.000

*. The mean difference is significant at the 0.05 level.
Yellow shading indicates significant mean differences.

ANNEXURE 8: POST HOC SCHEFFÉ TEST FOR ORGANISATIONAL CLIMATE SCORE DIFFERENCES ON THE BASIS OF GEOGRAPHICAL REGION

Geographical region (I)	Geographical region (J)	Mean difference (I-J)	Std. error	p
	2 Free State	-0.1084	0.1174	1.000
	3 Gauteng Central	0.1345	0.0904	0.998
	4 Gauteng North	-0.0357	0.0986	1.000
	5 Gauteng South	0.1338	0.1030	0.999
	6 Head Office (Pretoria)	-0.0238	0.0851	1.000
1 Eastern Cape	7 KwaZulu-Natal	0.0620	0.0938	1.000
	8 Limpopo	-0.3568	0.1438	0.862
	9 Mpumalanga	0.1263	0.1174	1.000
	10 North-West Province	-0.3093	0.1354	0.920
	11 Northern Cape	0.1368	0.1733	1.000
	13 Western Cape	0.0950	0.0931	1.000
	1 Eastern Cape	0.1084	0.1174	1.000
	3 Gauteng Central	0.2429	0.0933	0.817
	4 Gauteng North	0.0727	0.1013	1.000
	5 Gauteng South	0.2422	0.1056	0.918
	6 Head Office (Pretoria)	0.0846	0.0882	1.000
2 Free State	7 KwaZulu-Natal	0.1704	0.0967	0.989
	8 Limpopo	-0.2484	0.1456	0.992
	9 Mpumalanga	0.2347	0.1197	0.974
	10 North-West Province	-0.2009	0.1374	0.998
	11 Northern Cape	0.2452	0.1748	0.999
	13 Western Cape	0.2034	0.0960	0.953
	1 Eastern Cape	-0.1345	0.0904	0.998
	2 Free State	-0.2429	0.0933	0.817
	4 Gauteng North	-0.1702	0.0682	0.858
	5 Gauteng South	-0.0007	0.0744	1.000
3 Gauteng Central	6 Head Office (Pretoria)	-0.1583	0.0466	0.399
	7 KwaZulu-Natal	-0.0725	0.0610	1.000
	8 Limpopo	-0.4913	0.1249	0.163
	9 Mpumalanga	-0.0082	0.0933	1.000
	10 North-West Province	-0.4438	0.1151	0.190

	11 Northern Cape	0.0023	0.1580	1.000
	13 Western Cape	-0.0395	0.0600	1.000
	1 Eastern Cape	0.0357	0.0986	1.000
	2 Free State	-0.0727	0.1013	1.000
	3 Gauteng Central	0.1702	0.0682	0.858
	5 Gauteng South	0.1694	0.0842	0.968
	6 Head Office (Pretoria)	0.0119	0.0611	1.000
4 Gauteng North	7 KwaZulu-Natal	0.0977	0.0727	0.999
	8 Limpopo	-0.3211	0.1310	0.872
	9 Mpumalanga	0.1620	0.1013	0.995
	10 North-West Province	-0.2736	0.1217	0.928
	11 Northern Cape	0.1724	0.1628	1.000
	13 Western Cape	0.1306	0.0718	0.986
	1 Eastern Cape	-0.1338	0.1030	0.999
	2 Free State	-0.2422	0.1056	0.918
	3 Gauteng Central	0.0007	0.0744	1.000
	4 Gauteng North	-0.1694	0.0842	0.968
	6 Head Office (Pretoria)	-0.1576	0.0679	0.911
5 Gauteng South	7 KwaZulu-Natal	-0.0718	0.0785	1.000
	8 Limpopo	-0.4906	0.1343	0.272
	9 Mpumalanga	-0.0074	0.1056	1.000
	10 North-West Province	-0.4431	0.1253	0.328
	11 Northern Cape	0.0030	0.1655	1.000
	13 Western Cape	-0.0388	0.0777	1.000
	1 Eastern Cape	0.0238	0.0851	1.000
	2 Free State	-0.0846	0.0882	1.000
	3 Gauteng Central	0.1583	0.0466	0.399
	4 Gauteng North	-0.0119	0.0611	1.000
	5 Gauteng South	0.1576	0.0679	0.911
6 Head Office (Pretoria)	7 KwaZulu-Natal	0.0858	0.0529	0.995
	8 Limpopo	-0.3330	0.1211	0.752
	9 Mpumalanga	0.1501	0.0882	0.992
	10 North-West Province	-0.2855	0.1110	0.829
	11 Northern Cape	0.1606	0.1550	1.000
	13 Western Cape	0.1188	0.0517	0.917
	1 Eastern Cape	-0.0620	0.0938	1.000
	2 Free State	-0.1704	0.0967	0.989
7 KwaZulu-Natal	3 Gauteng Central	0.0725	0.0610	1.000
	4 Gauteng North	-0.0977	0.0727	0.999
	5 Gauteng South	0.0718	0.0785	1.000

	6 Head Office (Pretoria)	-0.0858	0.0529	0.995
	8 Limpopo	-0.4188	0.1274	0.460
	9 Mpumalanga	0.0643	0.0967	1.000
	10 North-West Province	-0.3713	0.1178	0.537
	11 Northern Cape	0.0748	0.1600	1.000
	13 Western Cape	0.0330	0.0651	1.000
	1 Eastern Cape	0.3568	0.1438	0.862
	2 Free State	0.2484	0.1456	0.992
	3 Gauteng Central	0.4913	0.1249	0.163
	4 Gauteng North	0.3211	0.1310	0.872
	5 Gauteng South	0.4906	0.1343	0.272
8 Limpopo	6 Head Office (Pretoria)	0.3330	0.1211	0.752
	7 KwaZulu-Natal	0.4188	0.1274	0.460
	9 Mpumalanga	0.4831	0.1456	0.443
	10 North-West Province	0.0475	0.1605	1.000
	11 Northern Cape	0.4936	0.1935	0.837
	13 Western Cape	0.4518	0.1269	0.316
	1 Eastern Cape	-0.1263	0.1174	1.000
	2 Free State	-0.2347	0.1197	0.974
	3 Gauteng Central	0.0082	0.0933	1.000
	4 Gauteng North	-0.1620	0.1013	0.995
	5 Gauteng South	0.0074	0.1056	1.000
9 Mpumalanga	6 Head Office (Pretoria)	-0.1501	0.0882	0.992
	7 KwaZulu-Natal	-0.0643	0.0967	1.000
	8 Limpopo	-0.4831	0.1456	0.443
	10 North-West Province	-0.4356	0.1374	0.526
	11 Northern Cape	0.0104	0.1748	1.000
	13 Western Cape	-0.0314	0.0960	1.000
	1 Eastern Cape	0.3093	0.1354	0.920
	2 Free State	0.2009	0.1374	0.998
	3 Gauteng Central	0.4438	0.1151	0.190
	4 Gauteng North	0.2736	0.1217	0.928
	5 Gauteng South	0.4431	0.1253	0.328
10 North-West Province	6 Head Office (Pretoria)	0.2855	0.1110	0.829
	7 KwaZulu-Natal	0.3713	0.1178	0.537
	8 Limpopo	-0.0475	0.1605	1.000
	9 Mpumalanga	0.4356	0.1374	0.526
	11 Northern Cape	0.4461	0.1874	0.894
	13 Western Cape	0.4043	0.1173	0.374
11 Northern Cape	1 Eastern Cape	-0.1368	0.1733	1.000

	2 Free State	-0.2452	0.1748	0.999
	3 Gauteng Central	-0.0023	0.1580	1.000
	4 Gauteng North	-0.1724	0.1628	1.000
	5 Gauteng South	-0.0030	0.1655	1.000
	6 Head Office (Pretoria)	-0.1606	0.1550	1.000
	7 KwaZulu-Natal	-0.0748	0.1600	1.000
	8 Limpopo	-0.4936	0.1935	0.837
	9 Mpumalanga	-0.0104	0.1748	1.000
	10 North-West Province	-0.4461	0.1874	0.894
	13 Western Cape	-0.0418	0.1596	1.000
	1 Eastern Cape	-0.0950	0.0931	1.000
	2 Free State	-0.2034	0.0960	0.953
	3 Gauteng Central	0.0395	0.0600	1.000
	4 Gauteng North	-0.1306	0.0718	0.986
	5 Gauteng South	0.0388	0.0777	1.000
13 Western Cape	6 Head Office (Pretoria)	-0.1188	0.0517	0.917
	7 KwaZulu-Natal	-0.0330	0.0651	1.000
	8 Limpopo	-0.4518	0.1269	0.316
	9 Mpumalanga	0.0314	0.0960	1.000
	10 North-West Province	-0.4043	0.1173	0.374
	11 Northern Cape	0.0418	0.1596	1.000

ANNEXURE 9: RECCOMENDATIONS FOR THE DEVELOPMENT OF EMOTIONAL INTELLIGENCE TO STIMULATE ORGANISATIONAL CLIMATE AND WORK OUTPUTS

1 Emotional intelligence and the external environment

In order to obtain benefits from interacting with the external environment, a deep understanding of the physical and sociocultural environment is needed. The external environment presents both opportunities and challenges, and using emotional intelligence may allow for the more constructive interpretation of the external environment.

- *Perceiving emotions: Self*

Emotions influence how perceptions are formed, and therefore an accurate awareness of one's own emotions is the first step in effectively interacting with the external environment.

Typical interventions:
Meditation or learning and development that aim to enhance self-awareness may benefit individuals to be aware of their own emotions and the effect on perceptions that is created subsequently when scanning the external environment for opportunities or threats.

- *Perceiving emotions: Other*

It is important that the emotions of others are read accurately so as not to misinterpret cues from the external environment.

Typical interventions:
Learning and development that aim to enhance employee-customer interactions. The accurate perception of the emotions of others enables aligned behaviour that facilitates positive interpersonal relations.

- *Use of emotions to facilitate thought*

Positive emotions may be needed to facilitate creativity and to see opportunities in the environment. However, more serious moods may be generated to focus attention in order to evaluate opportunities critically.

Typical interventions:
Learning and development with the focus on enabling participants to generate emotions that could enhance thought processes.

- *Understanding emotions*

Knowledge of emotions helps to identify emotions in self and other, but also to know which emotion to generate at what point in time.

Typical interventions:
Knowledge-driven learning and development such as online or classroom learning interventions with the focus on knowledge attainment on the subject of emotions.

- *Managing emotions*

Dispositional traits need to be understood and managed intelligently in order to optimise behaviour. Dispositions such as hostility, optimism, depression, anxiety or trust may generate emotions that are sub-optimal (or sometimes inappropriate) to the task and they need to be disengaged from or filtered to suit the situation.

Typical interventions:
Anger management and mood-filtering training.

2 Emotional intelligence and the organisational environment

The organisational environment is the area with the greatest influence on organisational climate and involves all aspects relevant to the organisational structure, the selection, attraction, attrition process and symbolic interactions. Where the external environment is outside the direct control of management and employees (and the focus is on emotionally intelligent interaction with it), the organisational environment can be more easily managed (or even designed) with emotional intelligence to create positive work climates. In this sense, as an example, the design of an organisational environment of an auditing firm needs to entice emotions that are more conducive to analytical, evaluative behaviour than the organisational environment that is needed for an artistic design studio, which needs an environment that would stimulate the emotions associated with creativity and freedom.

- Perceiving emotions: Self

It is important to accurately perceive the emotions that the structural design of the organisation evokes (i.e. rigid, formalised and autocratic versus flexible, informal and democratic). Perception of own emotions is also crucial in the selection, attraction and attrition process, in understanding the impression that is created by an individual on others during the process of moving from outsider to insider.

Typical interventions:
Learning and development, focusing on self-awareness and the acquisition of meditation skills.

- Perceiving emotions: Other

Accurate perception of the emotions of others is crucial during the selection, attraction and attrition process. The accurate perception of others' emotions improves the quality of interaction and communication with others through a deeper understanding of the non-verbal content of messages. It is therefore to be expected that developing this aspect of emotional intelligence would facilitate a smoother transition from selection of "outsiders" to becoming "insiders", perfectly aligned to the organisational ideologies, values, norms and work ways.

Typical interventions:
Learning and development, and focusing on accurate perception of the emotions of others. The context for development here shifts to the inner organisational environment to facilitate better understanding and communication between managers, team members and peers.

- Use emotions to facilitate thought

In general, more positive emotions facilitate better relationship building. This is typically what is required during the selection, attraction and attrition process.

Typical interventions:
Learning and development with the focus on enabling participants to generate emotions that could enhance thought processes.

- Understanding emotions

Understanding and expanding knowledge about the different emotions (see the emotions dictionary in table 2.1) builds one's repertoire of emotions needed in accurately identifying one's own and others' emotions, the use of emotions to facilitate thought and the managing of own emotions.

Typical interventions:
Learning and development based on the theory of emotions and emotional intelligence, including online or classroom learning.

- Managing emotions

Where emotions are generated that are incongruent with what is required for the situation, these emotions need to be managed. This helps facilitate effectiveness, but also the building and maintenance of relations during the selection, attraction and attrition process.

Typical interventions:
Anger management and mood-filtering training.

3 Emotional intelligence and the person environment

This part of the environment is also important because it deals with the individual, his/her management behaviour, leadership pattern and reward and control systems.

- Perceive emotions: Self

Employees need to be aware of their own emotions and how these influence others, in this instance, how their managers and direct reports interpret the content of these emotions (as unspoken language).

Typical interventions:
Leadership development, focusing on self-awareness and the acquisition of meditation and introspective skills.

- Perceive emotions: Other

Employees need to be aware, and accurately perceive the emotions of others. The focus here is on the manager to accurately perceive the emotions of others, in order to understand the verbal and non-verbal content of messages.

Typical interventions:
Leadership development, development of communication skills, development of facilitation skills focusing on accurate perception of the emotions of others. The context for development here shifts to the individual and his/her effectiveness as a leader.

- Use emotions to facilitate thought

The focus here is on the use of appropriate emotions to facilitate optimal management and leadership decision making. A more serious mood may be required when facts are evaluative, more positive moods when different options need to be generated, and when creativity is required for networking and relationship building.

Typical interventions:
Leadership development with a focus on enabling participants to generate emotions that could enhance managerial thought processes.

- Understanding emotions

Understanding emotions entails expanding knowledge about emotions and emotional intelligence and is important to enable one to identify one's own and others' emotions, the use of emotions to facilitate thought and the management of emotions.

Typical interventions:
Learning and development based on the theory of emotions and emotional intelligence, including online or classroom learning.

- Managing emotions

Where emotions are generated that are incongruent with what is required for the situation these emotions need to be managed. Effective management of emotions facilitates the development and maintenance of sound interpersonal relations and managerial effectiveness.

Typical interventions:
Anger management and mood-filtering training.