

**THE RELATIONSHIP BETWEEN SENSE OF COHERENCE AND EMOTIONAL
INTELLIGENCE: THE CASE OF SOUTH AFRICAN MARINE OFFICERS**

by

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SUMMARY

THE RELATIONSHIP BETWEEN SENSE OF COHERENCE AND EMOTIONAL INTELLIGENCE: THE CASE OF SOUTH AFRICAN MARINE OFFICERS

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The study of people's capacity to remain healthy when exposed to constant stressors has long been the focus of research. Stress resistance research has focussed on the adaptive worth of successful coping strategies, certain personality characteristics as well as social support. Two concepts which have gained eminence as contributing to an individual's ability to deal effectively with life's stressors are: (1) Sense of coherence; and (2) Emotional intelligence.

The aim of this study was to determine the possible relationship between sense of coherence and emotional intelligence. A once-off cross-sectional survey design was used. The sample population consisted of 54 South African marine officers serving in the merchant navy. The SOC-29 and the BarOn Emotional Intelligence Inventory (BarOn EQ-i) were used as measuring instruments. Sense of coherence was positively related to emotional intelligence. The results showed that there is a correlation of large effect between total sense of coherence and total emotional intelligence ($r = 0,73$) in marine officers. The results also showed that there are correlations of large effect between the subscales of the SOC-29 and the BarOn EQ-i.

Key Terms

Mental Health; Salutogenesis; Sense of Coherence; Emotional Intelligence; South African Marine Officers; SOC-29 Questionnaire; BarOn EQ-i; Job satisfaction; Burnout; Job performance

Table of Contents

CHAPTER 1 INTRODUCTION TO THE RESEARCH	1
1.1 BACKGROUND	1
1.2 PROBLEM STATEMENT	5
1.3 AIMS	5
1.3.1 General aim	5
1.3.2 Specific aims	5
1.4 HYPOTHESIS	6
1.5 PARADIGM PERSPECTIVE	6
1.6 RESEARCH DESIGN	7
1.7 RESEARCH METHOD	8
1.7.1 Phase 1	8
1.7.2 Phase 2	8
<i>1.7.2.1 Population and sample</i>	<i>9</i>
<i>1.7.2.2 Measuring Instrument</i>	<i>9</i>
<i>1.7.2.3 Data gathering</i>	<i>9</i>
<i>1.7.2.4 Data processing</i>	<i>9</i>
<i>1.7.2.5 Results</i>	<i>10</i>
1.7.3 Phase 3	10
<i>1.7.3.1 Conclusions</i>	<i>10</i>
<i>1.7.3.2 Limitations</i>	<i>10</i>
<i>1.7.3.3 Recommendations</i>	<i>10</i>
1.8 CHAPTER DIVISION	10

1.9	CHAPTER SUMMARY	11
	CHAPTER 2 SENSE OF COHERENCE	12
2.1	HISTORICAL OVERVIEW	13
2.2	CONCEPTUALIZATION OF SENSE OF COHERENCE	15
2.3	DIMENSIONS OF SENSE OF COHERENCE	18
2.3.1	Comprehensibility	19
2.3.2	Manageability	19
2.3.3	Meaningfulness	19
2.4	MEASURING SENSE OF COHERENCE	20
2.5	SENSE OF COHERENCE AND ITS RELATIONSHIP WITH OTHER CONSTRUCTS	21
2.5.1	Sense of coherence, competence and life satisfaction	21
2.5.2	Sense of coherence and the relationship between the work environment and burnout levels	21
2.5.3	Sense of coherence and job satisfaction	23
2.6	CHAPTER SUMMARY	24
	CHAPTER 3 EMOTIONAL INTELLIGENCE	26
3.1	HISTORICAL OVERVIEW	26
3.2	CONCEPTUALIZATION OF EMOTIONAL INTELLIGENCE	31
3.2.1	Salovey and Mayer	32
3.2.2	Daniel Goleman	34

3.2.3	Reuven Bar-On	35
3.2.4	Others	36
3.3	DIMENSIONS OF EMOTIONAL INTELLIGENCE	38
3.3.1	Ability model dimensions	38
3.3.2	Competency model dimensions	38
3.3.3	Summary	42
3.4	MEASURING EMOTIONAL INTELLIGENCE	48
3.4.1	Ability-based measures	48
3.4.2	Competency-based measures	51
3.4.3	Other measures	52
3.5	EMOTIONAL INTELLIGENCE AND ITS RELATIONSHIP WITH OTHER CONSTRUCTS	54
3.5.1	Emotional intelligence, empathy and self-monitoring	54
3.5.2	Emotional intelligence and social skills	54
3.5.3	Emotional intelligence and cooperation	55
3.5.4	Emotional intelligence and relations with others	55
3.5.5	Emotional intelligence and marital satisfaction	55
3.5.6	Emotional intelligence and leadership	55
3.5.7	Emotional intelligence and work success	57
3.5.8	Emotional intelligence and mental health	57
3.6	THEORETICAL INTEGRATION OF EMOTIONAL INTELLIGENCE AND SENSE OF COHERENCE	59
3.6.1	Sense of coherence, emotional intelligence and burnout	59
3.6.2	Sense of coherence, emotional intelligence and job satisfaction and performance	60
3.7	CHAPTER SUMMARY	65

CHAPTER 4 EMPIRICAL STUDY	68	
4.1	POPULATION AND SAMPLE	68
4.2	MEASURING INSTRUMENTS	72
4.2.1	Measurement of sense of coherence	72
4.2.1.1	<i>Reliability</i>	73
(a)	<i>Internal consistency</i>	73
(b)	<i>Test-retest</i>	73
4.2.1.2	<i>Validity</i>	73
(a)	<i>Content, face and consensual validity</i>	73
4.2.1.3	<i>Known groups</i>	74
4.2.1.4	<i>Factor structure of the SOC-29</i>	75
4.2.2	Measurement of emotional intelligence	75
4.2.2.1	<i>Reliability studies</i>	78
4.2.2.2	<i>Validity studies</i>	80
4.3	DATA GATHERING	82
4.4	DATA PROCESSING	83
4.5	HYPOTHESIS	83
4.6	CHAPTER SUMMARY	84
CHAPTER 5 RESULTS	85	
5.1	REPORTING OF RESULTS	85
5.1.1	Sample	85
5.1.2	Internal consistency	85
5.1.2.1	<i>SOC-29 internal consistency</i>	86
5.1.2.2	<i>BarOn EQ-i internal consistency</i>	86

5.1.3	Sense of coherence	87
5.1.4	Emotional intelligence	89
5.1.5	Correlations between sense of coherence and emotional intelligence	89
5.1.6	Regression analysis	92
5.2	INTERPRETATION OF RESULTS	94
5.2.1	Sense of coherence	94
5.2.2	Emotional intelligence	95
5.2.3	Correlation between sense of coherence and emotional intelligence	95
5.3	CHAPTER SUMMARY	97
CHAPTER 6 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS		98
6.1	CONCLUSIONS	98
6.1.1	Sense of coherence	98
6.1.2	Emotional intelligence	101
6.1.3	Integration of concepts at a theoretical level	103
6.1.4	Empirical relationship between sense of coherence and emotional intelligence	104
6.2	LIMITATIONS	105
6.3	RECOMMENDATIONS	106
6.4	CHAPTER SUMMARY	107
	LIST OF TABLES	viii
	LIST OF FIGURES	ix
	REFERENCES	108

LIST OF TABLES

	Page
Table 3.1	Bar-On conceptual components and factors 40
Table 3.2	Summary of emotional intelligence literature 43
Table 3.3	Presumed areas of overlap between sense of coherence and emotional intelligence 64
Table 3.4	Areas of difference between sense of coherence and emotional intelligence 65
Table 4.1	Normative data from published studies using the SOC-29 74
Table 4.2	Internal consistency coefficients for the BarOn EQ-i subscales examined with Cronbach's alpha on North American samples and Argentinean, German, South African, Nigerian, Israeli and Indian samples 79
Table 5.1	Sample demographic information 85
Table 5.2	Alpha coefficients of the SOC-29 (SOC-29) 86
Table 5.3	Alpha coefficients of BarOn EQ-i 87
Table 5.4	Descriptive statistics: SOC Scores 88
Table 5.5	Normative data from published studies using the SOC-29 88
Table 5.6	Emotional intelligence descriptive data (standardized scores) 89
Table 5.7	Product-moment correlation coefficients between SOC total and SOC subscales and BarOn EQ-i total score 90
Table 5.8	Product-moment correlation coefficients between total SOC and BarOn EQ-i subscales 91
Table 5.9	Product-moment correlation coefficients between the subscales of SOC and subscales of BarOn EQ-i 91
Table 5.10	Regression analysis between SOC total and subscales of BarOn EQ-i . 92
Table 5.11	Regression analysis between Comprehensibility and subscales of the BarOn EQ-i 93
Table 5.13	Regression analysis between Meaningfulness and subscales of the BarOn EQ-I 94

List of Figures

	Page
Figure 5.1 Scatter plot of relationship between sense of coherence and EQ total score	90

CHAPTER 1: INTRODUCTION TO THE RESEARCH

This study attempts to explore the relationship between sense of coherence and emotional intelligence. In this chapter, the framework of the research will be discussed. This includes the background to the study, the problem statement, the aims of the study, the hypothesis of the study, the research paradigm, research design and research method utilized.

1.1 BACKGROUND

Change appears to be the only constant in life. Random changes in the work and home environment, which are part and parcel of any progressing society, pose a threat to the health and well being of employees. These ungovernable changes also lead to an increase in stress, which can have an adverse impact on health. According to the World Health Organization (WHO), health is a state of physical, psychological and social well being (Ho, 2000). The WHO has instigated a "Health for All" initiative. This initiative, contained in the Ottawa Charter, is concerned with the positive health approach, which Antonovsky has termed the "salutogenic" approach (Dooris, 2001, p 51). The Charter states that:

Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love. Health is created by caring for oneself and others, by being able to take decisions and have control over one's life circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members.

Working activity is considered one of the essential facets of health. The "Health for All" initiative (referred to above) includes the capacity to live a socially and economically productive life. In studies on mental health, working conditions have been assessed primarily for the identification of factors that jeopardize mental well being. Health is a resource for a good life but, on the other hand, health and perceived wellbeing depend on a person's resources. One of the concepts that has

proved to be effective in the analysis of well being and which emphasizes the positive aspects of health rather than the symptoms and diseases within the salutogenic paradigm is sense of coherence as described by Aaron Antonovsky (Kalimo & Vuori, 1990). Antonovsky (1993, p 725) defined sense of coherence as follows:

... a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement.

Within the salutogenic paradigm the focus is on the origins of health and wellness, the locating and developing of personal and social resources and adaptive tendencies that relate to the individual's disposition, allowing him/her to select appropriate strategies to deal with confronting stressors and anxieties (Antonovsky, 1987). According to Antonovsky, sense of coherence consists of the following three dimensions:

- Comprehensibility – which refers to the extent to which the individual perceives stimuli deriving from the internal and external environments as making cognitive sense
- Manageability – which refers to the extent to which the individual perceives that resources at his/her disposal are adequate to meet the demands posed by the stimuli
- Meaningfulness – which refers to the extent to which the individual feels that life makes emotional sense

Another concept that has recently gained much popularity as a potential underlying attribute of health is the construct of emotional intelligence (Palmer, Walls, Burgess & Stough, 2001). The concept of emotional intelligence is not a new one. Aristotle

was possibly the first to point to the importance of emotion in human interaction when he said that those who possess the rare skill “to be angry with the right person, to the right degree, at the right time, for the right purpose and in the right way” are at an advantage (Langley, 2000). Emotional intelligence, at the most universal level, refers to the abilities to recognize and regulate emotions in others and ourselves. This economical definition insinuates four major emotional intelligence domains that are shared by all the main variations of emotional intelligence theory (Goleman, 2001):

- self-awareness
- self-management
- social awareness
- relationship management

The study will take place within the context of the South African merchant navy and the discussion that follows below is an attempt to establish this context. The *merchant navy*, in South Africa, is the term used to refer to marine activity that is not associated with the navy, which falls under the ambit of the Department of Defence. The nature of the operations that form part of this industry are diverse and wide ranging. Included in the activities of this industry are: blue water operations (including tanker and cargo vessels); mining vessels (mainly marine diamond mining); towage and salvage; anchor handling and oilfield support vessels; and port operations (National Port Authorities). The industry functions in the ever-changing and increasingly competitive international seafaring market. The nature of the operations in the towage and salvage, as well as the anchor handling arena, is often hazardous and, at times, life threatening.

In the merchant navy, the personnel are split into two (2) distinct departments: Deck and Engineering. Both of these carry out specialized functions and activities. Within each department, the personnel are divided into three tiers: marine officers, essentially the management team of the vessels; petty officers, essentially the supervisory level; and ratings, the blue-collar workers of the merchant navy. The focus of this study will be on the marine officers of the merchant navy. Marine

officers are away from home for extended periods of time. They spend this time, for the most part, on a vessel that is at sea. They become part of a tiny microcosm of the larger society but are physically isolated from this larger society. Communication with family and other support systems is infrequent and difficult. In addition, they are required to work long hours in an environment that has more risks and hazards associated with it than other work environments, such as those in which office workers function. These risks involve not only danger to others or to the vessel but to their own lives as well.

This target group, as described above, is therefore particularly relevant to this research because of the demands made on their ability to resist or cope with stress.

Stress resistance researchers emphasize people's capacity to remain healthy when stressors occur (Holahan & Moos, 1990). Stress resistance research has focused on the adaptive value of effective coping strategies, certain personality characteristics and social support (Holahan & Moos, 1990). The two concepts that have gained prominence as contributing to an individual's ability to deal effectively with life's stressors are: (1) sense of coherence (which forms part of Antonovsky's salutogenic paradigm approach); and (2) emotional intelligence. It has been argued that emotional intelligence can be either a static or a changeable personality trait or characteristic and that it develops through the interactions of three main influences: heredity, learning and physical changes in the body (typically thought of as nature, nurture and injury) (Simmons & Simmons, 1997). Many have argued that one can improve or change an individual's emotional intelligence by means of specific interventions (Goleman, 1995). Sense of coherence, on the other hand, is a dispositional orientation, not a state or a trait (Strümpfer, 1990). It embraces components of perception, memory, information processing and affect into habitual patterns of appraisal based on repeated experiences of sense making that have been facilitated by what are termed the generalized resistance resources or GRRs. It is, in a sense, a coping strategy of sorts.

1.2 PROBLEM STATEMENT

If both constructs, sense of coherence and emotional intelligence, equip individuals to better handle life stressors and thereby contribute to that individual's physical and emotional well being, what is the relationship between these two constructs? In trying to answer this question, we need to address the following specific problem questions:

- a What is sense of coherence?
- b What is emotional intelligence?
- c What is the theoretical relationship between sense of coherence and emotional intelligence?
- d What is the empirical relationship between sense of coherence and emotional intelligence in marine officers in the South African merchant navy?

1.3 AIMS

1.3.1 General aim

To explore the relationship between sense of coherence and emotional intelligence.

1.3.2 Specific aims

- a To conceptualize sense of coherence.
- b To conceptualize emotional intelligence.
- c To determine the theoretical relationship between sense of coherence and emotional intelligence.
- d To determine the empirical relationship between sense of coherence and emotional intelligence in marine officers in the South African merchant navy.

1.4 HYPOTHESIS

Pearson's product-moment correlation coefficient will be used to determine whether or not the researcher will accept or reject the alternative hypothesis delineated below:

H1: There is a practically significant relationship between emotional intelligence and sense of coherence in marine officers serving in the South African merchant navy.

An alpha coefficient of 0,5 will be used in this regard.

1.5 PARADIGM PERSPECTIVE

This research will address the issue of sense of coherence and emotional intelligence from an Industrial Psychology standpoint, encompassing the subdiscipline of personnel psychology. Personnel psychology is the field concerned with recruitment, selection, placement and training of employees, as well as the study of the factors that affect the utilization of personnel. It focuses on individual differences and predicting a fit between the employee and the organization (Bergh & Theron, 1999). This field is of relevance and importance to this study as the focus of this study is on individual differences as well as on the factors that affect the utilization of personnel. The research will be conducted from two paradigm perspectives: a humanistic psychology perspective and a salutogenic paradigm perspective. Within the humanistic psychology perspective it is accepted that (Meyer, Moore & Viljoen, 1997)

- the individual is an integrated being
- the individual is to be treated with dignity and respect
- man is basically good and strives to realize his potential although this may not always be possible
- the individual acts consciously and is aware of the choices he/she makes
- the individual decides how to act and does not merely react to situations thoughtlessly

This paradigm will be used to explore the construct of emotional intelligence. A salutogenic paradigm perspective will be used to explore the construct of sense of coherence. The salutogenic model aims at exploring the origins of health rather than explaining the causes of disease (which differs from the well-entrenched pathogenic approach traditionally used). According to this model, people have access to a variety of resources that can assist them to perceive the world as an organized and structured reality. These resources are called generalized resistance resources (GRRs) (Nilsson & Lindstrom, 1998). Use will be made of Antonovsky's salutogenic theory and include the construct of sense of coherence. Reference will be made in the literature review to Goleman's emotional intelligence-based Theory of Performance; Mayer, Salovey and Caruso's framework of emotional intelligence as a theory of intelligence; the Bar-On Emotional Quotient Inventory (BarOn EQ-i). The study will also make use of Reuven Bar-On's theory and measurement tool as it relates to emotional intelligence.

The discussion and review will encompass various metatheoretical concepts, including but not restricted to cognitive intelligence, stress, job stress, coping and life and job satisfaction, leadership, mental and physical wellbeing and health, and competitive advantage.

1.6 RESEARCH DESIGN

The study will be undertaken in two parts. The first part will be devoted to a literature review of selected literature available on the topics of sense of coherence and emotional intelligence. The second part of the study will encompass an empirical attempt to measure emotional intelligence and sense of coherence in marine officers in the South African merchant navy and to determine whether or not there is a statistically significant correlation between the two. Use will be made of two well-established and documented psychometric instruments to measure the two constructs concerned. The unit of analysis will comprise the individual. The dependent variable will be denoted as sense of coherence in Marine Officers serving in the South African merchant navy and the independent variable will be the

construct of emotional intelligence. Moderating factors that may affect the outcome of the study include the sampling method employed (convenience) owing to the nature of the industry's operation as well as the educational levels and language abilities of those comprising the sample population. Another possible moderating factor is the limited number of studies done with both instruments in the South African context. Accepted statistical means will be used to determine both the reliability and validity of the results of the study.

1.7 RESEARCH METHOD

This study will be divided into two phases:

1.7.1 Phase 1:

Phase 1 will endeavour, by means of a qualitative literature review, to determine the following:

- What sense of coherence is.
- What emotional intelligence is.
- What the theoretical relationship between sense of coherence and emotional intelligence is.

1.7.2 Phase 2

Phase 2 of this study will comprise an empirical investigation into the sense of coherence and emotional intelligence present in marine officers in the South African merchant navy. The study will be reported under the following headings:

1.7.2.1 Population and sample:

The population will consist of all the marine officers working in the South African merchant navy ($p = 600$). The sampling method employed will be convenience sampling (Howell, 1989) owing to the nature of the industry's operation. The sample (n) will consist of 54 marine officers serving in the South African merchant navy.

1.7.2.2 Measuring instrument

Two instruments will be used and these are discussed in Chapter 4. The two instruments that were selected are (1) SOC-29 Questionnaire developed by Antonovsky (Antonovsky, 1993); and (2) the BarOn EQ-i Questionnaire developed by Bar-On to measure emotional intelligence (Bar-On, 1997).

1.7.2.3 Data gathering

When the sample population has been selected by means of convenience sampling, candidates will be handed questionnaires, which will be collated once they have been completed.

1.7.2.4 Data processing

The questionnaires will be scored, analyzed and interpreted. Accepted statistical means will be used to provide data on the descriptive statistics of the sample as well as on the reliability of the study. To this end, use will be made of Microsoft Excel as well as the SPSS software package. Pearson's product-moment correlation coefficient will be used to determine whether the relationship between these two concepts is practically significant. An alpha coefficient of 0,5 will be used in this regard. Regression analysis will also be undertaken to examine the relationship between these constructs and to identify practically significant relationships between the two constructs.

1.7.2.5 *Results*

The results generated by the study will be presented in the form of tables, graphs and a correlation coefficient. The Microsoft Excel software package as well as the SPSS software package will be used to generate these.

1.7.3 **Phase 3**

1.7.3.1 *Conclusions*

Conclusions will be formulated in Chapter 6.

1.7.3.2 *Limitations*

The limitations of the research conducted will be presented in Chapter 6 for both the literature review and the empirical study.

1.7.3.3 *Recommendations*

Recommendations for future research will be formulated in Chapter 6.

1.8 **CHAPTER DIVISION**

The chapters which follow in this study are divided as follows:

Chapter 2	:	Sense of coherence
Chapter 3	:	Emotional intelligence
Chapter 4	:	Empirical study
Chapter 5	:	Results
Chapter 6	:	Conclusions, Limitations and Recommendations

1.9 CHAPTER SUMMARY

In this chapter the background to the study as well as the problem statement, the aims of the study, the hypothesis of the study, the research paradigm, research design and research method utilized were presented. The chapter that follows below will deal with the concept of sense of coherence.

CHAPTER 2: SENSE OF COHERENCE

The WHO vision of health is a state of optimal physical, mental and social wellbeing and not merely the absence of disease and infirmity. The Ottawa Charter defines health promotion as the process of enabling people to increase control over, and to improve, their health (Antonovsky, 1996). In recent years it has become increasingly clear that the tendency to perceive events and circumstances as stressful, ways of coping with them, and the way in which failure to cope is dealt with, depend in part on the characteristics of the person. These characteristics typically involve beliefs about the world and one's relationship with it, especially one's potential to deal with it (Levert, Lucas & Ortlepp, 2000). Options for these kinds of variables range from relatively specific, such as explanatory style, locus of control, self-efficacy, negative affectivity and self-esteem, to broad inclusive ones such as Antonovsky's sense of coherence and Kobasa's hardiness (Levert et al, 2000).

Both Antonovsky's sense of coherence and Kobasa's hardiness construct are relatively new in stress resistance literature. In particular, little research has been done on sense of coherence in a context in which it is related to well-being – extending beyond physical health (Levert et al, 2000). Antonovsky's sense of coherence may be integrated with a cognitive transactional model of stress as both models attribute subjective perceptions of the event to being the knowledge of the availability and accessibility of one's resources to deal with the event – a powerful role in the stress equation outcome (Levert et al, 2000).

This chapter seeks to explore the concept of sense of coherence. The concept will be examined under the following headings: Historical overview, conceptualization of sense of coherence, dimensions of sense of coherence, measuring sense of coherence and sense of coherence and its relationships with other constructs.

2.1 HISTORICAL OVERVIEW

Having faced life-threatening and destructive experiences during the Nazi regime, and numerous civil and other wars of our time, the medical sociologist Aaron Antonovsky put the question: "What is it that let a few people survive and even remain unexpectedly healthy despite suffering severely from fear, threats, starvation and torture?" (Novak, 2001, p. 1). This made him the original and most prominent promoter of the concept of salutogenesis, a concept that increasingly determines the political programmes of the WHO and its members, and which is in contrast to the concept of pathogenesis, well known and familiar in the field of medicine (Novak, 2001).

Levert et al (2000) argue that Antonovsky's primary contribution to the area of stress has been to bring about a conceptual shift to what he terms salutogenic thinking. They argue that from the 1950s onward, research in this area was primarily influenced by the medical model with its pathogenic orientation that focuses on the origins of disease rather than on what predisposed individuals towards health. Antonovsky's outlook entails a reorientation towards why it is that, despite being exposed to constant stressors, some individuals preserve their health, while others similarly situated yield to health breakdowns.

Antonovsky's point of departure was to focus attention on a paradigmatic maxim shared by both the proponents of curative medicine and the efforts of disease prevention – the maxim that is at the basis of the pathogenic orientation that permeates all Western medical thinking: "The human organism is a splendid system, a marvel of mechanical organization which is now and then attacked by a pathogen and damaged acutely or chronically or fatally" (Antonovsky, 1996, p.13). Antonovsky was led to propose the conceptual neologism of salutogenesis – the origins of health (Antonovsky, 1996).

Antonovsky argued that this approach would prove to be a more powerful guide for research and practice than the pathogenic orientation. He argued that if one started from the assumption that the human system is inherently flawed, subject to

unavoidable final death, what would follow was a set of ideas that could provide a theoretical basis highly agreeable to the proponents of health promotion. Antonovsky went on to propose a continuum model, which saw each individual, at a given point in time, somewhere along a "healthy/disease continuum" and which, he maintained, would provide a more powerful and accurate conception of reality; one which would open the way for a strong theory of health promotion. Antonovsky contended that one could understand the movement of individuals in the direction of the health end of the continuum by means of what he termed 'salutary' factors – factors that are negentropic, that actively promote health rather than just being low on risk factors (Antonovsky, 1996).

A salutogenic orientation, Antonovsky reasoned, as the basis for health promotion, directed both research and action efforts to encompass all persons, wherever they were on the continuum, and to focus on salutary factors. A salutogenic orientation, Antonovsky (1996) contended, also provided the basis for the development of a theory, which could be exploited by the field of health promotion.

Antonovsky argued that what explained movement towards the health pole of the health ease/dis-ease continuum were what he termed generalized resistance resources (GRRs). GRRs refer to a property of a person, a collective or a situation which, as evidence or logic has indicated, facilitated successful coping with the inherent stressors of human existence (Antonovsky, 1996). It appeared that what these GRRs had in common or what united them was that they all fostered, according to Antonovsky, repeated life experiences which helped an individual to see the world as making sense, cognitively, instrumentally and emotionally. Put in information systems theory terms, the stimuli bombarding the individual from the inner and outer environments were perceived as information rather than noise. This led to the emergence of the sense of coherence construct, a generalized orientation towards the world, which perceives it, on a continuum, as *comprehensible, manageable and meaningful*.

Antonovsky contended that the strength of an individual's SOC was a significant factor in facilitating the movement towards health. He argued that, confronted with a stressor, the individual with a strong sense of coherence will:

- wish to, be motivated to, cope (meaningfulness)
- believe that the challenge is understood (comprehensibility)
- believe that resources to cope are available (manageability)

Antonovsky maintained that the strength of an individual's sense of coherence is shaped by three kinds of life experiences:

- consistency
- underload-overload balance
- participation in socially valued decision making (Antonovsky, 1996).

2.2 CONCEPTUALIZATION OF SENSE OF COHERENCE

Salutogenesis is derived from the Latin *salus* (which means health) and the Greek *genesis* (which means origins) and is aimed at determining how people manage stress and stay well. The construct of sense of coherence underpins Antonovsky's theory of salutogenesis (Strümpfer, 1995) and is an especially promising construct in the salutogenetic analysis of well-being, with the emphasis being on the positive aspects of health rather than the symptoms (Kalimo & Vuori, 1990).

Antonovsky (1993, p.725) defined sense of coherence as follows:

... a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable; (2) the resources are available to one to meet the demands posed by these

stimuli; and (3) these demands are challenges, worthy of investment and engagement.

Close consideration of the definition will show, Antonovsky (1993) contends, that the sense of coherence contrasts with such concepts as self-efficacy, internal locus of control, problem-orientated coping, the challenge component of hardiness and mastery. He also argues that sense of coherence (and the items which constitute its operationalization) is a construct that is universally meaningful and one that cuts across lines of gender, social class, religion and culture (Antonovsky, 1993; Levert et al, 2000). It does not refer to a specific type of coping strategy but to factors that are the basis for successfully coping with stress in all cultures and times (Levert et al, 2000). Antonovsky emphasized that sense of coherence does not apply to a specific situation only but is a decisive element in the structure of an individual's personality that develops dynamically (Gilbar, 1998).

Sense of coherence, then, is a dispositional orientation that is presumed to engender, sustain and enhance health as well as strength at other endpoints, such as work (Strümpfer, Dana, Gouws & Viviers, 1998). Antonovsky used the concept of GRRs, which are described as any characteristic of the individual, the group or the subculture or society (Strümpfer, 1995), all of which can facilitate avoiding or combating a wide variety of stressors, for example, money, shelter and food, intelligence and knowledge, social support, rituals and religion. GRRs help the individual to make sense of the innumerable, complex stressors with which individuals are constantly inundated in the course of living (Strümpfer et al, 1998; Levert et al, 2000). If a person experiences the availability of GRRs regularly, a sense of coherence develops and, in turn, a strong sense of coherence mobilizes the GRRs at the individual's disposal in order to avoid or overcome stressors, with such experiences reinforcing the SOC in a feedback loop (Strümpfer, 1995). A strong sense of coherence enables an individual to mobilize effective coping resources in the face of stress, predisposing the individual to move towards the health side of the health/disease continuum (Levert et al, 2000). In his salutogenic model, Antonovsky uses this cyclical process to explain an individual's position on what he termed the health/disease continuum (Strümpfer, 1995; Levert et al, 2000). A

weak sense of coherence is likely to result in poor tension management and an inability to mobilize adequate resources, culminating in health breakdown (Levert et al, 2000).

Antonovsky further contended (Levert et al, 2000) that an abundance of GRRs will have consequences not only for the emergence of a strong sense of coherence and therefore health, but for other areas of well-being too. He expressed the expectation that there would be, by and large, positive correlations between sense of coherence and many facets of well-being, as these GRRs also directly promoted well-being (Strümpfer, 1995). Antonovsky (1987) argued that there are various routes from GRRs to well-being and Strümpfer (1995) highlighted three such routes:

- First, there is the indirect route of GRRs leading to sense of coherence, which generates good health, with health, in turn, having a positive effect on well-being.
- The second route mentioned by Antonovsky is directly from GRRs to wellbeing.
- The third route is that sense of coherence could be directly related to other aspects of successful living, like effective performance of work and career effectiveness, effective marital, parental and other interpersonal relationships but also probably having an effect on community involvement, religious expression and economic and political functioning.

Sense of coherence is a way of viewing the world that mitigates life stress by affecting the overall quality of an individual's perception of the stimuli that impact on the individual. The stimuli are perceived as comprehensible, that is, making cognitive sense; as being under the individual's own control and under that of legitimate others (e.g. spouse, friends, formal authorities, political leaders, God, and even systems such as trade unions or a pension fund); and as being motivationally meaningful, that is, being welcome challenges that are worth investing in and engaging with. Individuals with a strong SOC are more likely to show a readiness and willingness to exploit the resources that they have at their disposal (Strümpfer et al, 1998). Antonovsky postulates that the strength of sense of coherence, resulting from the

actual dynamic interrelationships of its three components (comprehensibility, manageability and meaningfulness), has direct physiological consequences and through such pathways affects health status (Novak, 2001).

Kalimo and Vuori (1990) argue that, in order to build a sense of comprehensibility, an individual must have experiences of environments that are sufficiently structured to make it possible to anticipate events. When comprehensibility becomes internalized it turns into an order-seeking attitude and the ability to find structure in events. Manageability is based on experiences of exercising control over the environment. Meaningfulness refers to a sense of importance and of value inherent in events and to the feeling that it is worthwhile to engage in life's challenges. They also contend that the concept of sense of coherence refers to an internalized sense of control that guides the orientation to coming events (Kalimo & Vuori, 1990). In this respect, they maintain that the concept of sense of coherence is similar to the concept of locus of control. They claim that a general, realistic and active sense of control creates anticipatory, health-promoting orientations.

It seems likely that sense of coherence could have implications for job satisfaction. Indeed, studies at the University of Cape Town (UCT) on diverse samples have consistently revealed strong relationships between the SOC scale and job satisfaction (Strümpfer et al, 1998). In a study conducted by Kalimo and Vuori (1990), they found that the level of sense of coherence differentiated people with competence and life satisfaction from people with less mental well-being. They also found that it was difficult to measure sense of coherence independently from the levels of mental well-being.

2.3 DIMENSIONS OF SENSE OF COHERENCE

As discussed above, the sense of coherence has three components, namely comprehensibility, manageability and meaningfulness (Levert et al, 2000). Antonovsky identified these three elements or dimensions of sense of coherence because of the complexity of the terminological construct of sense of coherence and

for its operationalization (Novak, 2001). These three components are discussed in more detail below.

2.3.1 Comprehensibility

Comprehensibility refers to the degree to which one regards the stimuli from both the internal and external environments as ordered, expected and understandable (Levert et al, 2000). Thus, comprehensibility of phenomena occurs if stimuli from the internal and external environment make sense in a cognitive way so that they turn out to be clearly ordered and structured, and that insofar as a solid ability to review reality is observed (Novak, 2001).

2.3.2 Manageability

Manageability refers to the belief that the resources are available to meet the demands posed by the stimuli from the internal and external environments (Levert et al, 2000). Thus, manageability of both the internal and external world is represented by the measured ability to make use of the resources at an individual's disposal in order to cope adequately with severe demands (Novak, 2001).

2.3.3 Meaningfulness

Meaningfulness refers to the degree to which these demands are seen as challenges, worthy of investment and engagement (Levert et al, 2000). Antonovsky claims to understand according to the emotional and not only according to the cognitive meaning of the word. Life makes emotional sense, even more so if disastrous experiences are willingly accepted as challenges to search for sense and to overcome these challenges (Novak, 2001).

2.4 MEASURING SENSE OF COHERENCE

Antonovsky's SOC-29 is used to measure the sense of coherence in individuals. It is a 29-item, 7-point semantic differential scale with two anchoring phrases. It is a systematic closed questionnaire and was based on a comprehensive theoretical model (Antonovsky, 1993). It is a self-report measure and it measures the three dimensions that make up the sense of coherence construct: comprehensibility, manageability and meaningfulness. There are 11 comprehensibility, 10 manageability and eight meaningfulness items. The subscales can be interpreted individually (Coetzee & Rothmann, 2000). Antonovsky reported alpha coefficients of the SOC-29 in 29 research studies varying between 0,85 and 0,91. Test-retest reliability studies found coefficients between 0,41 and 0,97 (Rothmann & Fourie, 2002).

Rothmann reported an alpha coefficient of 0,89 for the SOC-29, which may be regarded as acceptable. Regarding the construct validity of the SOC-29, it was found that there is a negative relationship between the SOC-29 and experienced stress and that the SOC-29 correlates negatively with the "State-Trait Anxiety Inventory-Trait and the "Beck Depression Inventory" (Rothmann & Fourie, 2002).

In a study with 1333 arthritis patients, Hawley, Wolfe and Cathey (Coetzee & Rothmann, 2000) found the reliability of the SOC-29 subscales to be 0,87, 0,90 and 0,80 respectively. The reliability coefficient for the total sense of coherence was 0,95. The alpha coefficient for the SOC-29 for this study was 0,71 (Comprehensibility), 0,75 (Manageability) and 0,84 (Meaningfulness) and 0,89 (SOC Total) (Coetzee & Rothmann, 2000).

Coetzee and Rothmann (2000) state that there is no meaningful relationship between the SOC-29 and intelligence. This measurement instrument is discussed in detail in Chapter 4 and Chapter 5.

2.5 SENSE OF COHERENCE AND ITS RELATIONSHIP WITH OTHER CONSTRUCTS

This section represents an attempt by the researcher to demonstrate the relationship between the construct of sense of coherence and other constructs of relevance to this particular study.

2.5.1. SOC, work, competence and life satisfaction

Kalimo and Vuori (1990) undertook a longitudinal study to investigate which job factors and personal resources contributed to the self-assessed competence and life satisfaction of individuals. One of the constructs utilized in the study was that of the salutogenetic analysis of well-being – sense of coherence . They found that the individual characteristics and family situation assessed in youth were relatively weak predictors of competence and life satisfaction in adulthood. Work-related factors differentiated clearly those with high competence and life satisfaction from those with a lower level in both components of well-being. More importantly, for the theme of this research, the level of sense of coherence was found to differentiate people with higher competence and life satisfaction from people with lower mental well-being. They argued that when the basic attitude to life involves trust in the order of the system and the possibility of anticipating, controlling and understanding events, the prerequisites for mental well-being are present. They contended that it was difficult to measure sense of coherence independently from the level of mental well-being but that, on the basis of previous studies, it could be hypothesized that sense of coherence was a more stable characteristic than the fluctuating level of mental wellbeing.

2.5.2. Sense of coherence and the relationship between the work environment and burnout levels

In their research into the burnout levels in psychiatric nurses in South Africa, Levert et al (2000) contended that in recent years it has become increasingly clear that the tendency to perceive events and circumstances as stressful, the ways of coping with

them and how failure in coping is dealt with depend, in part, on the characteristics of the individual. They argued that a strong sense of coherence would enable an individual to mobilize coping resources in order to deal effectively with stress and burnout. They found that the SOC-13, a shortened version of the SOC-29, correlated significantly with emotional exhaustion and depersonalization, two components of burnout. Significant correlations between the SOC-13 and burnout show that whether psychiatric nursing staff believe they have the resources available to meet the demands of their environment; the extent to which these demands are seen as challenges, worthy of investment and engagement; and the degree to which the environment is regarded as structured, predictable and explicable relate to whether or not they will experience the emotional exhaustion and depersonalization components of burnout.

Multiple regression analyses showed that the sense of coherence and workload contributed a significant 36.6 percent and 21.3 percent of the variance in emotional exhaustion and depersonalization respectively. This, they reasoned, was a considerable proportion when one considered the complexity of burnout and the variety of factors that play a role in it. It would thus appear that nurses with a strong sense of coherence and a manageable workload would be far less likely to experience emotional exhaustion and depersonalization.

In addition, a number of moderated multiple regression analyses were completed by the researchers to determine whether sense of coherence moderated the effects of the work environment on burnout (Levert et al, 2000). Contrary to indications in much of the literature, the current study did not find sense of coherence to be a significant moderator. According to the researchers, this was due to a number of possible reasons:

- Methodological difficulties (moderated regression procedures tend, they argued, to yield very conservative estimates of interaction effects)
- A strong sense of coherence has an influence at an earlier point, namely it changes the stress appraisal in the first instance. This means it has a mediating rather than a moderating effect. Indeed, according to Antonovsky's

theory, a person with a high sense of coherence will be more likely to define stimuli as non-stressors and to define the stress attributed to stimuli perceived as stressors as benign or irrelevant;

- A further explanation is possible at an even earlier stage. There may be a tendency for people with a low sense of coherence to end up in more stressful situations, or even to “create” stressors to a greater degree; or
- People who are high in sense of coherence are simply predisposed to better psychological health, despite stressors. In their study, Kravetz, Drory and Florian (1993) found sense of coherence (together with hardiness and locus of control) to signify “health prones”. They also found sense of coherence to relate negatively to negative affect (the disposition to feel negative emotional states). Although further research is required in this area, this may imply a more direct relationship between sense of coherence and burnout.

2.5.3. Sense of coherence and job satisfaction

Strümpfer et al (1998) undertook a study into the interactional explanations of job satisfaction, specifically the relative weight attached to dispositional aspects as opposed to situational aspects. They argued that it is likely that sense of coherence has implications for job satisfaction. Indeed, they stated that studies carried out at UCT on diverse samples have unfailingly revealed strong relationships between the SOC-29 scale and job satisfaction. Their findings presented some support for the view that dispositions and job satisfaction are related – strongest (relatively) for sense of coherence. They reported that the SOC-29 scale was the only dispositional measure that consistently showed both statistically and practically significant correlations with job satisfaction, representing from just over 5 to 22 percent of common variance. These findings, they argued, combined with previous results obtained in diverse samples and using a variety of job satisfaction measures, form a collection of cross validated findings that cannot be ignored (Strümpfer et al, 1998; Strümpfer, 1995).

Strümpfer et al (1998) postulated that it was likely that a strong sense of coherence developed earlier, outside the current work situation, would enhance job satisfaction.

In addition, they contended that, with respect to the current work situation and in terms of what the sense of coherence construct implies, it could be said that greater job satisfaction would tend to be present when the employee:

- makes cognitive sense of the workplace and perceives its stimulation as clear, ordered, structured, consistent and predictable information
- perceives his work as consisting of experiences that are bearable and with which he can cope, and as challenges that he can meet by availing himself of personal resources and/or resources under the control of legitimate others
- makes emotional and motivational sense of work demands as welcome challenges, worthy of engaging in and investing his energies in

2.6 CHAPTER SUMMARY

The following can be deduced from the above:

- Health is a positive state of physical, mental and social wellbeing – not simply the absence of injury or disease – that varies over time along a continuum.
- Health is seen as a dynamic entity along the illness/wellness or health-ease/disease continuum with death at the one end and optimal health at the other, which suggests that health and sickness are not entirely separate concepts but overlapping phenomena.

Salutogenesis is the theory of the origins of health. The salutogenic model was introduced by Antonovsky and examines how individuals remain healthy despite omnipresent stressors. In the model, health status is viewed as a continuum. This model is in stark contrast to the pathogenic model prevalent in the medical world. This is the theory of the origins of disease and represents the dominant paradigm in research on stress, coping and health. It is concerned with explaining how people become ill and assumes a stressor-disease relationship. In this model health is viewed as a dichotomy (well versus ill).

Sense of coherence, the core of a complex theoretical model, refers to a global orientation to one's inner and outer environments, which is hypothesized to be a significant determinant of location and movement on the health-ease/dis-ease continuum. The SOC-29 scale was developed using a facet-theoretical design to operationalize this construct and provide one way of testing this hypothesis (Antonovsky, 1993).

The definition of sense of coherence, as discussed under point 2.2 above, embodies three dimensions or components that enable the construct to be operationalized. They are:

- comprehensibility
- manageability
- meaningfulness

The sense of coherence construct provides a valuable insight into the way in which individuals cope with the demands of their internal and external environments and makes this coping measurable in a valid and reliable manner, as can be seen by the data pertaining to the SOC-29 measure described in Chapter 4 below.

In this chapter, the construct of sense of coherence was explored by means of a discussion of the historical overview of the construct, a conceptualisation of the construct, dimensions of the construct, measurement of the construct as well as the relationship sense of coherence has with other constructs.

Chapter 3, which follows, sets out to explore the construct of emotional intelligence.

CHAPTER 3: EMOTIONAL INTELLIGENCE

There is widespread interest in the topic of emotional intelligence, fuelled to some extent by Daniel Goleman's book, "*Emotional Intelligence: Why it can matter more than IQ*", and its associated publicity (Dulewicz & Higgs, 2000; Mayer, Perkins, Caruso & Salovey, 2001; Tapia, 2001). The concept of emotional intelligence is stated to be based on extensive scientific and research evidence, however, little research has been conducted in an organizational context (Dulewicz & Higgs, 2000). There is increasing interest in the role of emotions in organizational life (Fisher & Ashkanasy, 2000) and a number of authors have emphasized the importance of understanding and managing the impact of emotions and related behaviours in terms of organizational success (Higgs, 2001). Corporate interest appears to be strongly related to the continuing search for a way of securing sustainable competitive advantage (Dulewicz & Higgs, 2000).

This chapter seeks to explore the construct of emotional intelligence. This exploration is conducted under the following headings: Historical overview; conceptualization of emotional intelligence; dimensions of emotional intelligence; measuring emotional intelligence; emotional Intelligence and its relationship with other constructs; integration of the constructs of emotional intelligence and sense of coherence; and a chapter summary

3.1 HISTORICAL OVERVIEW

The roots of the development of the concept of emotional intelligence appear to lie in the apparent inability of traditional measures of so-called rational thinking to predict who will succeed in life. Goleman has argued that IQ, at best, contributes 20 percent of the factors that determine success in life (Dulewicz & Higgs, 2000). This belief is in line with conclusions drawn by researchers who have a prima facie commitment to the supremacy of IQ (Dulewicz & Higgs, 2000).

The search for characteristics other than IQ that sufficiently explain variations in success (Dulewicz & Higgs, 2000) and the idea of different types of intelligence is by

no means new (Bagshaw, 2000). Psychologists have been trying to define intelligence for nearly a century. The word "intelligence" does not appear in books prior to 1900 (Bar-On, 1997). Over the past 100 years, most theories of intelligence have posited the primacy of *general ability*, or "g", at the top of a hierarchical model. This general factor "g" represents what many psychometric researchers feel is *the* primary mental ability that underlies what all intelligence tests have in common (Pfeiffer, 2001).

Successively more specific mental abilities constitute the lower strata or levels of generality, depending on the particular theory – fluid and crystallized intelligence being one example and verbal-comprehension and non-verbal-perceptual-spatial abilities is another. These traditional theories of intelligence share a number of consensual attributes: they all agree that intelligence is goal-directed mental activity marked by efficient problem solving, critical thinking and effective abstract reasoning (Pfeiffer, 2001).

A growing number of theorists argue that traditional views of intelligence place too great of a stress on "g" and are too narrowly read. These critics argue that traditional models give unwarranted weight to mental activities that are of a premium in academic performance (Pfeiffer, 2001).

E.L. Thorndike was one of the first to identify the aspect of emotional intelligence he called social intelligence in the 1920s (Goleman, 2001). Thorndike defined three types of intelligence (Bagshaw, 2000):

- the type that is measured in IQ tests – that is understanding and manipulating verbal and mathematical concepts – which he called abstract intelligence
- the understanding and manipulating of objects and shapes which he called concrete intelligence
- lastly, the third type, social intelligence, which he defined as the ability to understand and relate to people

It was in reviewing the predictive power of IQ that Thorndike developed the concept of social intelligence as a means of explaining variations in outcome measures not accounted for by IQ (Dulewicz & Higgs, 2000).

In 1937, Robert Thorndike and Saul Stern reviewed the attempts to measure the social intelligence E.L. Thorndike had discussed and in the process identified three different areas adjoining social intelligence (Goleman, 2001).

David Wechsler discussed the "non- intellectual" factors in general intelligence as early as 1940 (Bar-On, 1997). Bar-On argues that Wechsler's definition of "general intelligence" is one of the most useful and one that lends itself to considering other forms of intelligence in addition to cognitive intelligence. Wechsler regarded the concept of intelligence as the cumulative or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his/her environment . Wechsler went on to suggest that this definition included the ability to adapt to new situations and to cope with life situations successfully. Bar-On argues that within this broader definition it is possible to juxtapose the notion of noncognitive (emotional, personal and social) intelligence alongside cognitive intelligence.

The next half a century of psychology, dominated as it was by the behaviourist paradigm on the one hand and the IQ testing movement on the other, turned its back on the emotional intelligence idea (Goleman, 2001).

In 1967 Guilford pioneered an early view of intelligence as a multifaceted construct consisting of 120 different types of intelligence (Pfeiffer, 2001).

Howard Gardner had a major hand in resurrecting emotional intelligence theory in psychology (Goleman, 2001; Dulewicz & Higgs, 2000; Rozell, Pettijohn & Parker, 2002). His influential model of multiple intelligences includes two varieties of personal intelligence: the interpersonal and intrapersonal intelligences (Goleman, 2001). Bar-On (1997) argues that Gardner's "multiple intelligences" can be viewed as an expansion of Wechsler's concept of "general intelligence", and that aspect of

multiple intelligences that he refers to as “personal intelligences” is an expansion of Wechsler’s “non-intellective factors”.

Howard Gardner proposed his theory of multiple intelligences in 1983 as a direct challenge to the classical view of intelligence (Gardner, Kornhaber & Wake, 1996; Gardner & Hatch, 1989). Gardner argued for a new view of non-hierarchically arrayed, primary mental abilities, called multiple intelligences. Gardner’s view is based on the logic that there are many ways to be intelligent (Pfeiffer, 2001). According to Gardner, the classical view holds that intelligence is a unitary capacity for logical reasoning of the sort exemplified by mathematicians, scientists and logicians (Gardner et al, 1996). Parting from the unitary notion of intelligence, Gardner et al (1996) make a strong claim for several relatively autonomous intelligences. Gardner proposed seven such intelligences (Pfeiffer, 2001):

- verbal
- mathematical
- kinesthetic
- musical
- interpersonal
- intrapersonal intelligences

For the purposes of this study, the last two types of intelligence will be expanded on. Gardner states that *intrapersonal intelligence* depends on core processes that enable people to distinguish between their own feelings. Gardner emphasized the role played by this intelligence in enabling individuals to build an accurate mental model of themselves and to draw on such a model to make good decisions about their lives. *Interpersonal intelligence*, contends Gardner, makes use of core capacities to recognize and make distinctions between others’ feelings, beliefs and intentions. In its most developed forms, interpersonal intelligence manifests itself in the ability to understand, act on and shape others’ feelings and attitudes (Gardner et al, 1996).

It is crucial to remember that Gardner regards the intelligences only as potentially useful scientific constructs and uses the word intelligence as a term for organizing and describing human capabilities, rather than a reference to some commodity inside an individual's head (Gardner et al, 1996).

Gardner's writing on interpersonal and intrapersonal intelligences specifically sets the stage for subsequent, more elaborate, theorizing on emotional intelligence as a type of intelligence. Many theorists have followed Gardner's lead in proposing expanded views of intelligence. Two important bodies of writing that specifically elaborate on Gardner's early conceptualisation of emotional intelligence are Goleman and Salovey and Mayer (Pfeiffer, 2001) and these are discussed below.

Reuven Bar-On made perhaps the first attempt to assess emotional intelligence in terms of a measure of well-being. He used the term emotional quotient (EQ) quite some time before it gained widespread popularity (Goleman, 2001).

Finally, in 1990, Peter Salovey and John Mayer published the seminal article "Emotional Intelligence" – the most influential statement of emotional intelligence theory in its current form. Citing a need to distinguish emotional intelligence abilities from social traits or talents, Salovey and Mayer evolved a model with a cognitive emphasis (Goleman, 2001).

3.2 CONCEPTUALIZATION OF EMOTIONAL INTELLIGENCE

A growing body of literature suggests that moods and emotions play a central role in cognitive processes and behaviour (George, 2000). The notion of emotional intelligence arises out of the search for a set of measurable tendencies and capabilities which, in addition to IQ, could serve as valid predictors of academic, occupational and life successes (Fox & Spector, 2000).

Emotional intelligence draws on a research tradition that focuses on intelligent behaviour in natural situations or practical intelligence. In contrast to abstract

academic intelligences, practical intelligence is directed at an individual's short- and long-range goals, and is employed to solve problems important to the individual's emotions, wellbeing, needs, plans and survival. The notion of emotional intelligence is based on several competencies and tendencies related to the experience of moods and emotions (one's own and those of others) that can contribute to the successful navigation of one's social environments and, as such, may be considered a subset of practical intelligence (Fox & Spector, 2000).

Emotional intelligence is the ability or tendency to perceive, understand, regulate and harness emotions adaptively in the self and in others. Some conceptualizations of emotional intelligence are rather broad and include a range of adaptive characteristics associated with emotions, whereas others emphasize the cognitive elements, such as emotions aiding judgement and memory. Furthermore, researchers have conceptualized emotional intelligence both as an ability and as a trait (Schutte et al, 2001).

There are several theories of emotional intelligence (Schutte et al, 2001):

- Gardner's Theory of Multiple Intelligences (discussed above) encompasses intrapersonal and interpersonal intelligence, including knowledge of one's own emotions and thoughts.
- Averul and Nunley's Emotional Creativity Theory focuses on the value of emotional fulfilment through emotional creativity.
- Saarni's Theory of Emotional Competence is similar to other theories of emotional intelligence but places an additional emphasis on the social contexts of emotional functioning and on emotional self-efficacy.

The study will now review the standpoints of these theorists, who are thought to be in the forefront of the conceptualisation of emotional intelligence.

3.2.1 Salovey and Mayer

The term “emotional intelligence” was first coined in 1990 by two psychologists – Peter Salovey and John Mayer (Langley, 2000; Pfeiffer, 2000; Boyatzis, Goleman & Rhee, 1999; Dulewicz & Higgs, 2000; Caruso, 1999). Theirs is an “ability” model of emotional intelligence and they define it as the ability to reason with and about emotions (Caruso, 1999). According to Mayer and Salovey in Caruso (1999, p. 2) and George (2000, p.5), emotional intelligence is

...the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth.

According to Mayer and Salovey, this definition connects intelligence and emotion because it combines the ideas that (a) emotions make thinking more intelligent and that (b) one thinks intelligently about emotions (Tapia, 2001). In other words, emotional intelligence essentially describes the ability to join emotions and reasoning effectively, using emotions to facilitate reasoning and reasoning intelligently about emotions (George, 2000; Rozell et al, 2002). In this sense, emotional intelligence taps into the extent to which individuals’ cognitive capabilities are informed by emotions and the extent to which emotions are cognitively managed (George, 2000).

Salovey and Mayer view emotional intelligence as a set of skills hypothesized to contribute to the accurate appraisal and expression of emotion in oneself and others, the effective regulation of emotion in oneself and others and the use of feelings to motivate, plan and achieve in one’s life (Pfeiffer, 2001; Gardner & Stough, 2002). They emphasize four cognitive components (Pfeiffer, 2001):

- the capacity to perceive emotion
- to integrate it in thought
- to understand emotion
- to manage emotion

Their work subsumes Gardner's intrapersonal and interpersonal intelligences and in many ways is consistent with earlier research on social intelligence. Salovey and Mayer argue that it is not problematic to view emotional intelligence as a legitimate type of intelligence and acknowledge that neither their theory of emotional intelligence nor research necessarily supports a "g" model of intelligence (Pfeiffer, 2001). They justify the designation of "emotional intelligence" because it requires the processing of specific emotional information from within the individual and because some level of competence at these skills is necessary for adequate social functioning (Fox & Spector, 2000). Indeed, Mayer et al (2001) argue in a later article that emotional intelligence will be considered an actual traditional intelligence. From this perspective, they argue that emotional intelligence arises from a productive union of the cognitive and emotion systems wherein the cognitive system carries out abstract reasoning about emotions while the emotion system enhances cognitive capacity. More specifically, individuals high in emotional intelligence have the ability to perceive, understand and manage emotions, on the one hand, and to allow emotions to facilitate their thought, on the other. Salovey and Mayer carried out comprehensive tests to establish emotional intelligence as a genuine intelligence based on the theoretical concept and definition of an intelligence. Their goal was to produce a test that measured emotional intelligence in a similar way to IQ and the Wechsler Adult Intelligence Scales. Their work suggested that intellect and emotional intelligence were different and indeed used different parts of the brain. Salovey and Mayer have recently succeeded in producing a norm-tested EQ scale . They have postulated that emotional intelligence is composed on four branches: managing and regulating emotion; understanding and reasoning about emotion; assimilating basic emotional experiences; and perceiving and appraising emotion (Langley, 2000).

Mayer and Salovey's ability model of emotional intelligence described above is the most theoretically well clarified (Palmer et al, 2001).

3.2.2 Daniel Goleman

Goleman hypothesized that emotional intelligence plays a role in establishing and maintaining relationships (Schutte et al, 2001). His thesis is that the balance and management of one's emotions determines how intelligently one will act and one's ultimate success in life. His model of emotional intelligence contends that a large number of human abilities fall within the emotional intelligence construct, including: frustration tolerance, delay of gratification, motivation, zeal, persistence, impulse control, regulation of mood, ability to empathize, attunement to others, hopefulness and optimism (Pfeiffer, 2001). Goleman (1995) defines emotions as impulses to act. He points out that, although there is no consensus on which human emotions are primary, the main candidates are anger, sadness, fear and enjoyment (Pfeiffer, 2001).

Goleman adapted the Salovey and Mayer model to explore how it relates to working life. His approach differs from Cooper's Four Cornerstone Model of Emotional Literacy, Emotional Alchemy, Emotional Depth and Emotional Fitness. Goleman splits emotional intelligence into two broad categories of personal and social competence. These, in turn, are broken down into a number of supporting competencies such as self-awareness, self-regulation, motivation, empathy and social skills. It is the sub-competencies that Goleman defines that provide identifiable points on his "map" of emotional intelligence (Langley, 2001).

Emotional competencies, Goleman (2001) argues are job skills that can, and indeed must, be learned. Goleman defined an emotional competence as a learned capability based on emotional intelligence that results in outstanding performance at work (Boyatzis et al, 1999). An underlying emotional intelligence ability is necessary though not sufficient, to manifest competence in any one of the four emotional intelligence domains or clusters. Goleman contends that although one's emotional intelligence determines one's potential for learning the practical skills that underlie the four emotional intelligence clusters, one's emotional competence demonstrates how much of that potential one has realized by learning and mastering skills and translating intelligence into on-the-job capabilities (Goleman, 2001).

Boyatzis et al (1999) contend that Goleman presented a model of emotional intelligence with 25 competencies arrayed in five clusters:

- the self-awareness cluster
- the self-regulation cluster
- the motivational cluster
- the empathy cluster
- the social skills cluster

It has been argued by some that Goleman provides a useful definition of the construct of emotional intelligence, which is about (Dulewicz & Higgs, 2000; Bagshaw, 2000):

- knowing what one is feeling and being able to handle these feelings without having them swamp one
- being able to motivate oneself to get jobs done, be creative and perform at one's peak; and
- sensing what others are feeling and handling relationships effectively.

3.2.3 Reuven Bar-On

The Bar-On approach to non-cognitive intelligence (as well as that of John Mayer and Peter Salovey) is also related to the "non-intellective" component of intelligence (Bar-On, 1997; Gardner & Stough, 2002). Cognitive intelligence, which has traditionally been measured with IQ, attempts to indicate one's capacity to understand, learn, recall, think rationally, solve problems and apply what one has learned. Like cognitive intelligence, emotional and social intelligence is difficult to define. The term "emotional intelligence" does not yet appear in dictionaries and, as such, its definition is still an unsettled issue as are the boundaries of this relatively new domain (Bar-On, 1997).

Broadly speaking, non-cognitive intelligence addresses the personal, emotional, social and survival dimensions of intelligence, which are often more important for daily functioning than the more cognitive aspects of intelligence. Emotional, personal and social intelligence are concerned with the ability to understand oneself and others, relate to people and adapt to and cope with the immediate surroundings, which increases one's ability to be more successful in dealing with environmental demands. While cognitive intelligence is more strategic, non-cognitive intelligence is more tactical. Non-cognitive intelligence helps to predict success because it reflects how a person applies knowledge to the immediate situation (Bar-On, 1997).

Non-cognitive intelligence is defined by Bar-On (1997) as an array of personal, emotional and social abilities and skills that influences one's capacity to succeed in coping with environmental demands and pressures. As such, one's non-cognitive intelligence is an important factor in determining one's ability to succeed in life and directly influences one's general emotional well-being.

3.2.4 Others

George (2000) argued that there are at least four major aspects of emotional intelligence:

- The appraisal and expression of emotion – this pertains to both the self and others. Individuals differ in terms of the degree to which they are aware of the emotions they experience and the degree to which they can verbally and non-verbally express these emotions to others. Appraising and expressing the emotions of others is the ability to accurately determine the emotions others are experiencing and the ability to accurately convey or communicate these feelings. Related to the appraisal and expression of emotion in others is the concept of empathy, the ability to understand and experience another person's feelings or emotions. Empathy, a contributor to emotional intelligence, is an important skill which enables individuals to provide useful social support and maintain positive interpersonal relationships.

- The use of emotions to enhance cognitive processes and decision making – emotional intelligence not only entails being aware of one’s own emotions but also using these emotions in functional ways.
- Knowledge about emotions – emotional knowledge is concerned with understanding both the determinants and consequences of moods and emotions and how they evolve and change over time.
- Management of emotions – emotional intelligence also includes a more proactive dimension with regards to feelings: the management of one’s own and others’ moods and emotions. Essentially, emotional intelligence encompasses individual differences in the ability to accurately reflect on one’s moods and manage them.

A concise definition of emotional intelligence is provided by Martinez (Dulewicz & Higgs, 2000). She defines emotional intelligence as being “an array of non-cognitive skills, capabilities and competencies that influence a person’s ability to cope with environmental demands and pressures (Martinez, 1997, p. 72). This is a very similar definition to the one provided by Bar-On.

Other conceptualizations of emotional intelligence have used labels such as “practical intelligence” and “successful intelligence” (Boyatzis et al, 1999)

Integrating the work of Goleman and Boyatzis, Boyatzis et al (1999, p.3) offered the following descriptive definition:

Emotional intelligence is observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness and social skills at appropriate times and ways in sufficient frequency to be effective in the situation.

3.3 DIMENSIONS OF EMOTIONAL INTELLIGENCE

It is important to bear in mind, during the discussion presented below, the difference between the ability and competency models and their respective approaches to emotional intelligence. Within the ability model of emotional intelligence, emotional intelligence is viewed as the ability to reason with and about emotions. In this way, intelligence and emotion are connected in that emotional intelligence taps into the extent to which an individual's cognitive capabilities are informed by emotion as well as the extent to which emotions are cognitively managed. On the other hand, Goleman, the most prominent exponent of the competency model, argues that emotional competencies (which make up emotional intelligence) are job skills that can be learned. An emotional competence is defined as a learned capability based on emotional intelligence that results in outstanding performance at work.

3.3.1 Ability model dimensions

Mayer and Salovey break emotional intelligence into four related parts (Caruso, 1999):

- identifying emotions – the ability to correctly identify how people are feeling
- using emotions – the ability to create emotions and to integrate one's feelings into the way one thinks
- understanding emotions – the ability to understand the causes of emotions
- managing emotions – the ability to figure out effective strategies that use one's emotions to help one achieve a goal, rather than being used by one's emotions

3.3.2 Competency model dimensions

In reviewing the nature and definition of emotional intelligence, it is evident, Dulewicz and Higgs (2000) argue, that the construct addresses individual traits, values and behaviours. This would, they argue, align, to a large extent, with the concept of a

competency as defined by Boyatzis. Boyatzis (in Dulewicz and Higgs, 2000) defined a job competency as an underlying characteristic of a person in that it may be a motive, trait, aspect of one's self-image or social role, or a body of knowledge that he/she uses. Dulewicz and Higgs maintain that there are clear parallels between the drivers of interest in competencies and of emotional intelligence. The view that emotional intelligence relates to a set of competencies is reinforced by prominent authors in the field. A number of specific competency frameworks include high performing competencies directly aligned to elements of emotional intelligence. Cockerill (in Dulewicz and Higgs, 2000), in identifying high performing competencies includes a number that touch on emotions. Dulewicz, in exploring and describing the "supra-competencies", includes a grouping labelled interpersonal competencies.

Emotional intelligence is a combination of competencies (Bliss, 2000). Goleman maintains that these competencies contribute to an individual's ability to manage and monitor his/her own emotions, to correctly determine the emotional state of others and to influence opinions. Goleman describes a model of five dimensions (Bliss, 2001):

- Self-awareness – the ability to recognize a feeling as it happens, to accurately perform self-assessments and have self-confidence. It is, Goleman (1995) argues, the keystone of emotional intelligence.
- Self-management or self-regulation – the ability to keep disruptive emotions and impulses in check (self-control), maintain standards of honesty and integrity (trustworthiness), take responsibility for one's performance (conscientiousness), handle change (adaptability) and be comfortable with novel ideas and approaches (innovation).
- Motivation – the emotional tendency guiding or facilitating the attainment of goals. It consists of achievement, drive, commitment, initiative and optimism.
- Empathy – the understanding of others by being aware of their needs, perspectives, feelings, concerns and sensing the developmental needs of others.

- Social skills – these are fundamental to emotional intelligence. They include: influence, communication, leadership, building bonds, collaboration, and cooperation and creating group synergy in pursuing collective goals.

Bar-On (1997) identified five major conceptual components of emotional and social intelligence, which, between them, are comprised of 15 factors. These are outlined in the table 3.1 below:

Table 3.1 Bar-On Conceptual Components and Factors

Conceptual component	Factors	Factor definition
Intrapersonal components	Emotional self-awareness	The ability to be aware of and understand one's feelings
	Assertiveness	The ability to express feelings, beliefs and thoughts and defend one's rights in a nondestructive manner
	Self-regard	The ability to be aware of, understand, accept and respect one's self
	Self-actualization	The ability to realize one's potential capacities and to do what one can do, wants to do and enjoys doing
	Independence	The ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency
Interpersonal components	Empathy	The ability to be aware of, to understand and to appreciate the feelings of others
	Social responsibility	The ability to demonstrate oneself as a cooperative, contributing and constructive member of one's social group
	Interpersonal relationship	The ability to establish and maintain mutually satisfying relationships that are characterized by emotional closeness, intimacy and by giving and receiving affection
Adaptability components	Reality testing	The ability to assess the correspondence between what is emotionally experienced and what objectively exists
	Flexibility	The ability to adjust one's emotions, thoughts and behaviour to changing situations and conditions
	Problem solving	The ability to identify and define problems as well as to generate and implement potentially effective solutions
Stress management components	Stress tolerance	The ability to withstand adverse events, stressful situations and strong emotions without "falling apart" by actively and positively coping with stress
	Impulse control	The ability to resist or delay an impulse, drive or temptation to act and to control one's emotions
General mood components	Optimism	The ability to look at the brighter side of life and to maintain a positive attitude, even in the face of adversity and negative feelings
	Happiness	The ability to feel satisfied with one's life, to enjoy oneself and others and to have fun and experience positive feelings

Although there is a level of agreement amongst researchers on the domain of emotional intelligence, there appear differences in the detailed description of the component elements or dimensions. Dulewicz and Higgs proposed and validated a model for this, the dimensions of which are summarized below (Higgs, 2001):

- Self-awareness – self-awareness relates to an individual’s self-knowledge. The tendency to be in touch with one’s feelings and emotions and to make a realistic appraisal of one’s strengths and weaknesses.
- Emotional resilience – the ability to perform consistently in a range of situations under pressure and to adapt one’s behaviour appropriately. The ability to retain focus on a course of action or the need for results in the face of personal challenge or criticism.
- Motivation – the drive and energy to achieve clear results and make an impact, and to balance both short-term and long-term goals;
- Interpersonal sensitivity – the ability to be aware and take account of the needs and perceptions of others when arriving at decisions and proposing solutions to problems and challenges.
- Influence – the ability to persuade others to change a viewpoint based on an understanding of their position and the recognition of the need to listen to this perspective and prove a rationale for change.
- Intuitiveness – the ability to arrive at clear decisions and drive their implementation when presented with incomplete or ambiguous information using both rational and “emotional” insightful perceptions of key issues and implications.
- Conscientiousness – the ability to display clear commitment to a course of action in the face of challenge and to match words with deeds in encouraging others to support the chosen direction. The personal commitment to pursuing an ethical solution to a difficult business issue or problem.

In reflecting on the results of their research, Dulewicz and Higgs proposed that emotional intelligence might be seen in terms of (Higgs, 2001) the following:

- **Drivers** – the core drivers of an individual's behaviour in a work context. The drivers are motivation and intuitive decision making.
- **Constrainers** – the elements that constrain or limit an individual's behaviours and actions. The constrainers are conscientiousness and emotional resilience.
- **Enablers** – the elements that facilitate the achievement of results and goals. The enablers are interpersonal sensitivity, influence and self-awareness.

3.3.3 Summary

In table 3.2 an overview is provided of the component elements of emotional intelligence as it was developed by Dulewicz and Higgs (2000) from a relatively simple content analysis of the literature. The table has been altered by the researcher to reflect the contents of the literature reviewed above.

Table 3.2 Summary

Goleman	Gardner	Salovey and Mayer	Gardner and Hatch	Bar-On
Self-awareness				
Know own feelings	Ability to relate inner and outer world	Knowing one's emotions		Being aware of and understanding one's own feelings
In touch with feelings Use feelings to make decisions with confidence	Self-knowledge	Self-awareness Recognizing a feeling as it happens.		Assessing the correspondence between what is emotionally experienced and what objectively exists
Emotional management				
Not reflecting on own moods	Ability to form an accurate and truthful model of oneself and use model to work effectively	Managing emotions		Ability to be aware of, understand, accept and respect one's self
Focus on results (what needs to be done)		Handling feelings so that they are appropriate		
Self-motivation				
Delay gratification		Motivating oneself		Ability to realize one's potential capacities and to do what one can do, wants to do and enjoys doing

Goleman	Gardner	Salovey and Mayer	Gardner and Hatch	Bar-On
		Marshalling emotions in search of a goal		The ability to resist or delay an impulse, drive or temptation to act and to control one's emotions
Do not give up in face of setbacks				
Maintain optimism				
Empathy				
Sensing what others are feeling	Ability to understand others, what motivates them and how they work	Recognizing emotions in others	Personal connection	The ability to be aware of, to understand and to appreciate the feelings of others
Interactions go smoothly			Preventing and resolving conflicts	The ability to adjust one's emotions, thoughts and behaviour to changing situations and conditions
Social effectiveness			Deal making	
Good at handling conflict			Social analysis	
Good at handling emotional upsets			Insights into others' feelings, emotions and concerns	
Can sense pulse of relationships in groups				
Can articulate unstated feelings				
Naturally takes the lead in organizing groups				
People appreciate leadership				

Goleman	Gardner	Salovey and Mayer	Gardner and Hatch	Bar-On
Talent for settling disputes				
Talent for negotiating				
Talent for deal making				
<i>Relationships</i>				
Balancing compassion and caring	Working cooperatively	Handling relationships	Organizing groups	The ability to establish and maintain mutually satisfying relationships that are characterized by emotional closeness, intimacy and by giving and receiving affection
Persuading others to work to a common goal		Managing emotions in others	Initiating and coordinating the efforts of a network of people	
Helping others to learn		Social competencies	Preventing conflicts	
Promoting social harmony			Social analysis	
<i>Trust building</i>				
Networking: building rapport with a key network			Rapport building	The ability to demonstrate oneself as a cooperative, contributing and constructive member of one's social group

Goleman	Gardner	Salovey and Mayer	Gardner and Hatch	Bar-On
Promoting and exhibiting cooperation with others				
Effective team working				
Consensus building				
Collaboration				
Communication				
Open communication				Ability to express feelings, beliefs and thoughts and defend one's rights in a nondestructive manner
Listening				
Speaking one's mind				

Goleman	Gardner	Salovey and Mayer	Gardner and Hatch	Bar-On
Personal style				
Balance "hard/soft" in decisions				Ability to withstand adverse events, stressful situations and strong emotions without "falling" apart by actively and positively coping with stress
Stress management				The ability to look at the brighter side of life and to maintain a positive attitude, even in the face of adversity and negative feelings
Accept personal responsibility				The ability to feel satisfied with one's life, to enjoy oneself and others and to have fun and experience positive feelings
Little need for control				

3.4 MEASURING EMOTIONAL INTELLIGENCE

The development of an emotional intelligence measure has not kept pace with the theorizing and popular interest in the emotional intelligence construct (Pfeiffer, 2001). Throughout the literature on emotional intelligence there is considerable debate around the feasibility of measuring the construct (Dulewicz & Higgs, 1999). Pfeiffer (2001) argues that, at this point in time, there is no brief, objective, theoretically grounded measure of emotional intelligence that enjoys acceptable reliability or validity. However, there are self-report instruments that purport to measure emotional intelligence and a smaller number of emotional intelligence measures that are not in a self-report format. Every measure of emotional intelligence is tied to a certain definition of emotional intelligence (Caruso, 1999), therefore the various measures are discussed under the following headings:

3.4.1 Ability-based measures

Ability measures potentially related to emotional intelligence have been studied for years, and work has also been done in the area of physiographic emotional expression and non-verbal communication, among others. The first scales under the name of "emotional intelligence" date to 1990, with more substantial emotional intelligence scales – those employing multiple tasks and sophisticated scaling – introduced a bit later (Mayer et al, 2001).

Two such tests, the Multifactor Emotional Intelligence Scales (MEIS) and the companion adolescent version (MEIS-A) have provided considerable information about emotional intelligence (Mayer et al, 2001). These two ability tests were developed by Drs Mayer and Salovey, along with David Caruso (Caruso, 1999). Both are based on an intelligence model of emotional intelligence in which overall intelligence is divided into four areas or branches (as discussed earlier in this study) (Mayer et al, 2001), that is, as the ability to:

- perceive emotions
- access, generate and use emotions to assist thought
- understand emotions and emotional knowledge
- regulate emotions to promote emotional and intellectual growth

For a mental characteristic to qualify as a standard intelligence, it must be operationalized as an ability, must meet a number of correlational criteria, must be independent of prior intelligences and must develop with age. The sorts of items on the MEIS and MEIS-A indicate that emotional intelligence can be operationalized as abilities (Mayer et al, 2001). The MEIS and MEIS-A were written so as to be content-valid in comparison with the 1997 Mayer and Salovey model of emotional intelligence. The factorial validity of the MEIS and MEIS-A is promising. The coefficient alpha reliability of the full scale MEIS is 0,96 and the reliability of the MEIS-A is 0,94. With regard to discriminant validity, emotional intelligence appears moderately correlated with, but meaningfully distinct from, general intelligence with the correlation ranging from $r = 0,5$ to $r = 0,30$, depending upon the specific measure of general intelligence employed (Mayer et al, 2001).

Emotional intelligence appears to be a member of the family of intelligences, whilst remaining distinct enough to be studied in its own right. Considering evidence for its content, factorial, discriminant and predictive validity, the MEIS and MEIS-A appear promising as measures of emotional intelligence (Mayer et al, 2001).

The Trait Meta Mood Scale (TMMS) is a 30-item self-report measure of individual differences in the ability to reflect on (or monitor) and manage one's emotions (Palmer et al, 2001;Pfeiffer, 2001). The scale allows subjects to rate on a five-point Likert scale the extent to which they agree with items (Pfeiffer, 2001). The TMMS is a reliable scale (full scale reliability = 0,82) and provides a valid index of what it purports to measure (Palmer et al, 2001).

Palmer et al (2001) argue that there are self-report measures of emotional intelligence and performance-based measures of emotional intelligence, such as the MSCEIT. Self-report measures of emotional intelligence are described to assess a

person's perceived emotional intelligence rather than their actual emotional intelligence. Relationships between ability and performance criteria are typically found to be more reliable and valid when assessed by performance-based tests of ability rather than self-reports of ability.

Tapia (2001) states that one way of assessing emotional intelligence is by evaluating the way in which an individual solves emotional problems. Some scales assess emotional intelligence by evaluating self-reported beliefs about an individual's emotional intelligence. These scales use a broader concept of emotional intelligence and include motivation, non-ability dispositions and traits, and global and social functioning. Self-reports of ability and actual ability have minimal correlations. Tapia contends that individuals act in accord with their stated beliefs and that, therefore, a self-report scale for measuring emotional intelligence would be highly useful in research.

The Emotional Intelligence Inventory was originally designed by Tapia and Burry-Stock to investigate the underlying dimensions of emotional intelligence. The items were developed according to the model of emotional intelligence developed by Salovey and Mayer. The scale also incorporated the work of a preceding inventory, the Emotional Intelligence Inventory, which was developed based on Goleman's book (Tapia, 2001). The 45 items of Tapia and Burry-Stock were constructed to cover four areas of emotional intelligence (Tapia, 2001):

- perception, appraisal and expression of emotion
- emotional facilitation of thinking
- understanding and analyzing emotions, employing emotional knowledge
- reflective regulation of emotion

Findings indicate that the revised Emotional Intelligence Inventory has promise as a reliable and valid measure of emotional intelligence as defined by Mayer and Salovey in Tapia (2001). The revised Emotional Intelligence Inventory is a self-report measure of emotional intelligence and, like most self-report measures, may be susceptible to inflation.

3.4.2 Competency-based measures

The Emotional Competence Inventory is a 360-degree tool designed to assess the emotional competencies of individuals and organizations. It is based on the emotional competencies identified by Daniel Goleman in working with emotional intelligence, competencies from Hay/McBers "Generic Competency Dictionary as well as Richard Boyatzis's Self-Assessment Questionnaire (SAQ) . It assesses 20 competencies and contains a total of 110 items with at least three items to assess each competency. To allow for subjective strength of responses, a seven-point response format has been employed. Reliabilities have been examined and are reported high for every competency – Cronbach's alpha coefficient ranging between 0,798 and 0,948 (HayGroup, 2001).

Goleman (1995) constructed a set of 10 illustrative emotional intelligence questions that he feels represent a situation in which an emotionally intelligent response is quantifiable. He suggests that one's responses to these 10 questions will provide an estimate of a person's EQ (Pfeiffer, 2001). Goleman assumes, Pfeiffer (2001) argues, that there is one correct response to each of his 10 EQ items and that the more items answered correctly, the higher one's EQ. However, Pfeiffer (2001) contends, as there is no test manual, it is uncertain how Goleman developed or selected test items and whether he collected any data in support of the emotional intelligence scale's validity. Also, Pfeiffer adds, it is not clear what ability or abilities Goleman's EQ test measures (Pfeiffer, 2001).

In broad terms, Goleman suggests, contend Dulewicz and Higgs (1999), that a competence-based measure is more likely to yield an effective measure of emotional intelligence than a pencil-and-paper test. Other authors highlight the problems of measuring emotional intelligence.

The BarOn Emotional Quotient Inventory was developed by Reuven Bar-On and is arguably the first scientifically developed and validated measure of emotional intelligence. It is based on 17 years of research by Dr Bar-On and has been normed

on 9000 individuals worldwide (van Rooyen & Partners, 2002). It is designed to measure a number of constructs related to emotional intelligence. The BarOn consists of 133 items and takes approximately 30 minutes to complete. It gives an overall EQ score as well as scores for five composite scales (Intrapersonal, Interpersonal, Adaptability, Stress Management and General Mood) and 15 subscales (Emotional Self-Awareness, Assertiveness, Self-Regard, Self-Actualization, Independence, Interpersonal Relationships, Empathy, Social Responsibility, Problem Solving, Reality Testing, Flexibility, Stress Tolerance, Impulse Control, Happiness and Optimism) (EI Consortium, 2001). The BarOn BarOn EQ-i is very versatile and can be applied in a number of settings in many different ways (van Rooyen & Partners, 2002). This measure is discussed at length in Chapter 4 below.

The BarOn Emotional Quotient Inventory Youth Version is a 60-item self-report instrument designed to measure emotional intelligence in young people, ages 7 to 18 years. It makes use of the seven emotional intelligence scales referred to above. Raw scores are converted into standard scores with a mean of 100 and a standard deviation of 15 – thus paralleling the popular IQ tests. It employs a four-point Likert style format (Pfeiffer, 2001).

3.4.3 Other measures

The Work Profile Questionnaire – EI (Emotional Intelligence) Version (WPQei) – is an 84-item instrument designed to measure the personal qualities and competencies that employees need to develop to manage emotion at work – that is, those developed by researchers such as Mayer and Salovey, and Goleman. The WPQei is based on a conceptual model of emotional intelligence that has seven components (EI Consortium, 2001):

- **Innovation** – understanding one's creative style coupled with the ability to generate creative responses to business problems oneself and through others
- **Self-awareness** – understanding one's strengths and weaknesses coupled with drive to improve one's capability

- **Intuition** – using instinct, hunches and feelings along with facts and information to guide decisions
- **Emotions** – recognizing and understanding one's feelings and emotions and managing their impact on other people
- **Motivation** – achievement, striving, energy, initiative and persistence
- **Empathy** – taking an interest in people and listening to their views, problems and concerns
- **Social skills** – building relationships with people and communicating effectively with them.

In contrast to the self-report measures discussed, the Emotion Perception Test is one of the few emotional intelligence tests that is not a self-report inventory. It purports to measure emotional perceptions in colours, musical vignettes, sound intervals and faces. Subjects are presented with various stimuli and asked to rate on a five-point Likert scale their experience of the amount of emotion present in each stimuli, across six different emotion scales – happiness, sadness, anger, fear, surprise and disgust (Pfeiffer, 2001).

A further measure that has been promoted commercially is the EQ Map. Although there is some evidence for convergent and divergent validity, the data has been reported in a somewhat ambiguous fashion (Cherniss, 2000).

Another measure deserves mention, even though it is less well known than the others. Schutte, Malouff, Hall, Haggerty, Cooper, Golden and Dornheim have developed a 33-item self-report measure based on Salovey and Mayer's early work. There is evidence for convergent and divergent validity (Cherniss, 2000).

3.5 EMOTIONAL INTELLIGENCE AND ITS RELATIONSHIP WITH OTHER CONSTRUCTS

This section represents an attempt by the researcher to demonstrate the relationship between the construct of emotional intelligence and other constructs of relevance to this particular study.

3.5.1 Emotional intelligence, empathy and self-monitoring

Because the ability to perceive and understand emotions in others is an important component of emotional intelligence, persons with higher emotional intelligence should have a greater ability to experience empathy. Salovey and Mayer (Schutte et al, 2001) posited that empathy is an important component or correlate of emotional intelligence. Preliminary support for this notion came from Mayer, Caruso and Salovey who, by using a performance measure of emotional intelligence, found that individuals with higher scores for emotional intelligence had higher scores for empathy (Schutte et al, 2001).

Self-monitoring is the ability to (a) understand others' emotions and behaviours; (b) understand environmental contexts; and (c) modify self-preservation behaviour in response to such understanding. Because emotional intelligence includes understanding others' emotions and regulating one's own emotions, higher emotional intelligence may facilitate self-monitoring (Schutte et al, 2001).

3.5.2 Emotional intelligence and social skills

Because the central components of emotional intelligence are the ability to understand others' emotions and the ability to regulate and harness one's own emotions adaptively, one would expect persons with higher emotional intelligence to be more socially adept and to display better social skills. Social skills are the lubricants of social life that assist individuals to interact in mutually beneficial ways. In addition, social skills tend to be reciprocal – persons who display good social skills

tend to receive good treatment in return and to be liked by others (Schutte et al, 2001).

3.5.3 Emotional intelligence and cooperation

The ability to understand others' emotions and the ability to regulate one's own emotions may be important foundations for cooperation with others. Cooperation in turn, is an essential element in building and maintaining relationships. Individuals who cooperate tend to have more positive relationships with each other (Schutte et al, 2001).

3.5.4 Emotional intelligence and relations with others

Many aspects of emotional intelligence may be foundations for building good relationships. One would, thus, expect individuals with higher emotional intelligence to be more socially connected and to have better relationships. Good relationships fulfil basic needs for belonging and nurturance; the social support provided by relationships buffers the negative impact of life stressors (Schutte et al, 2001).

3.5.5 Emotional intelligence and marital satisfaction

Many of the aspects of emotional intelligence assist individuals to build satisfying long-term relationships. One would, therefore, expect that individuals with higher emotional intelligence would have better marital relationships and experience greater marital satisfaction than those with lower emotional intelligence (Schutte et al, 2001).

3.5.6 Emotional intelligence and leadership

Goleman argues that bosses and leaders, in particular, require high emotional intelligence because they represent the organization to the public, they interact with the highest number of people within and outside the organization and they set the climate for employee morale (Murray, 1998).

Emotional intelligence provides a new perspective on management development because it has the capability to enhance the promotion potential of employees (Langley, 2000).

Research examining the utility of emotional intelligence in predicting effective leaders is gaining momentum in industrial psychology. Emotionally intelligent leaders are thought to be happier and more committed to their organization, achieve greater success, perform better in the workplace, take advantage of and use positive emotions to envision major improvements in organizational functioning and use emotions to improve their decision making and instil a sense of enthusiasm, trust and cooperation in other employees through interpersonal relationships. Despite these theoretical links there has been relatively little empirical research examining the relationship between emotional intelligence in the workplace and effective leadership (Gardner & Stough, 2002).

An exploratory study by Barling, Slater and Kelloway (in Gardner & Stough, 2002) examined the relationship between the transformational/transactional leadership paradigm and emotional intelligence. These authors suggest that emotional intelligence predisposes leaders to use transformational behaviours.

Examining leadership styles and the emotional intelligence of 49 managers, Barling, Slater and Kelloway (2000) concluded that emotional intelligence is positively related to three components of transformational leadership – idealized influence, inspirational motivation and individualized consideration – and contingent reward, a component of transactional leadership.

Palmer, et al (2001) correlated the subscales of a modified version of the Trait Meta Mood Scale which measures the attention, clarity and mood repair dimensions derived from the Salovey and Mayer model, with the subscales of the multifactor leadership questionnaire. They reported several significant correlations between transformational leadership and emotional intelligence. Their study provided preliminary evidence for the relationship between emotional intelligence and effective leadership.

Effective leadership and human relationships play a vital part in assisting organizations to achieve competitive advantage (Langley, 2000). Today's leaders must be able to create climates that foster not only performance but also pride and purpose (HayGroup, 2001). Effective leadership skills appear to depend, in part, on the understanding of emotions and abilities, a skill associated with emotional intelligence (Palmer et al, 2001).

3.5.7 Emotional intelligence and work success

It has become apparent in today's world that it takes more than cognitive intelligence to be successful at work – it also requires emotional intelligence (Murray, 1998). A recent and excellent review of the emotional intelligence literature undertaken by Dulewicz and Higgs demonstrates clearly that emotional intelligence impacts on work success (Higgs, 2001; Tischler, Bibermna & McKeage, 2002). Work success was defined in this study as the advancement in an individual's work organization (Dulewicz & Higgs, 2000; Tischler et al, 2002). Dulewicz and Higgs (2000) found that 36 percent of the variance in organizational advancement was accounted for by the emotional intelligence competencies scale they employed.

Rozell et al (2002) argue that the notion of emotional intelligence has recently crept into the psychological literature and that it has vast applicability to many workplace issues such as performance, job satisfaction, absenteeism, organizational commitment and leadership issues.

3.5.8 Emotional intelligence and mental health

It appears increasingly clear from the emotional intelligence literature that those with higher emotional intelligence seem to have healthier, happier, more productive lives and seem to do better at work. The effect size reported is important enough to investigate further (Tischler et al, 2002).

Researchers have illustrated the importance of marital relationships in maintaining good mental and physical health (Schutte et al, 2001). It has been illustrated above (point 3.4.6) that individuals with higher EQ have better marital relationships and, indeed, greater marital satisfaction.

A study undertaken by Parker, Taylor and Bagby in 2001 sought to examine the relationship between emotional intelligence, as measured by the BarOn EQ-i and the construct of alexithymia as measured by the Toronto Alexithymia Scale (TAS-20) (MHS, 2002). The main purpose of the study was to determine if the total score of the TAS-20 and the scores from each of its three factors are distinguishable from the total score of the EQ-i. The results revealed that the constructs overlap and are inversely related. A significant negative correlation was obtained between the TAS-20 and its three factors and the adaptability and stress management factors of the BarOn EQ-i. These results raised the possibility that high emotional intelligence might be a protective factor in mental and physical health (MHS, 2002).

Dupertius and Garrido (MHS, 2002) proposed in their 1998 manuscript that the BARON EQ-I presents a different definition of the concept of psychological well-being and the personality factors involved in it. In general, it is suggested that a better ability for problem solving and for managing stress, more impulse control and a more positive attitude towards oneself and others imply greater enjoyment of life resulting in psychological well-being (MHS, 2002).

Researchers from the Occupational Psychology Department of Middlesex University have carried out a pilot study – the first of its kind in Britain– of 36 inner London police officers. They found that emotionally intelligent officers, as measured by the BarOn EQ-i, are more likely to adopt mentally healthy stress coping strategies, have high levels of job satisfaction and satisfactory levels of psychological well-being. They found that the high levels of job satisfaction were linked to feeling good about oneself in the workplace – a factor that would contribute to both better competence and psychological well-being (Police Magazine, 2002).

Meaningfulness or purpose in life, one of the three components of the sense of coherence construct, has also been related both to physical and psychological health, though the research is not extensive (MacArthur & MacArthur, 1997). Petrie and Azariah (in MacArthur & MacArthur, 1997), using Antonovsky's sense of coherence construct, found that the meaningfulness factor predicted self-reports of pain at a six month follow-up of a pain-management programme.

Both emotional intelligence and sense of coherence have been shown to be correlated to the construct of psychological well-being. The rest of the chapter will consider other constructs that both the emotional intelligence and sense of coherence constructs have been linked to.

3.6 THEORETICAL INTEGRATION OF EMOTIONAL INTELLIGENCE AND SENSE OF COHERENCE

The section that follows is an attempt by the researcher to integrate the two constructs discussed in Chapters 2 and 3 at a theoretical level.

3.6.1 Sense of coherence, emotional intelligence and burnout

Burnout has been defined as a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur among individuals who work (Rothmann & Fourie, 2002).

A person with a strong sense of coherence is likely to see stressful situations as less threatening, which could contribute to lower burnout. Feldt, who studied emotional exhaustion as a work-related well-being indicator, found that as the level of sense of coherence strengthened the scores of emotional exhaustion decreased (Rothmann & Fourie, 2002).

Rothmann and Fourie conclude from their study that it would appear that emotional exhaustion and depersonalization are unlikely to occur when an individual has a high

sense of coherence because the individual sees the world as comprehensible, manageable and meaningful.

Vuori (Coetzee & Rothmann, 2000) found that a relationship exists between a strong sense of coherence and the promotion of health in the work situation, such as the moderate use of alcohol and anti-smoking behaviour. In a study undertaken by Danana (Coetzee & Rothmann, 2000) in a population of black, female nurses in Umtata, it was found that sense of coherence correlated negatively with the intensity of stressful events at work but correlated positively with job satisfaction, general well-being and the quality of care given to patients. Fritz studied the relationship between sense of coherence, health and work within a financial organization. He found that sense of coherence had a negative relationship with role ambiguity and role conflict, and negative correlations with depression. Job satisfaction and life satisfaction, however, correlate positively with sense of coherence. Anstey found that, in the chemical industry, there was no relationship between sense of coherence, stressors or health- and job-related outcomes (Coetzee & Rothmann, 2000).

Nanin (2001) found that burnout had a significant negative relationship with sense of coherence ($r = 0,51, p < 0.1$) but that the sense of coherence was positively correlated with health status ($r = 0,56, p < 0.1$).

In 1997, Curdy (MHS, 2002) found a significant negative correlation between the EQ, as measured by the BarOn EQ-i and all the composite scales and the Tedium Measure. The results of this study suggest that people who burn out are significantly less emotionally intelligent than people who do not (MHS, 2002).

3.6.2 Sense of coherence, emotional intelligence and job satisfaction and performance

For Coetzee and Rothmann (2000), job satisfaction is a complex variable and is influenced by situational factors of the job environment as well as dispositional characteristics of an individual. Job satisfaction is an affective or emotional response toward various facets of a person's job and stems from the incumbent's comparison

of actual outcomes with the required outcomes . According to Bassett (Rothmann & Fourie, 2002), worker satisfaction results from external factors in the work situation. However, internal forces, which are entirely unrelated to the work environment, may also play a role in the satisfactory state of the individual. Some people seem to be satisfied in almost every situation while others are the exact opposite . Satisfaction may, therefore, be related to personality and the dispositional characteristics of an individual (Rothmann & Fourie, 2002).

Strümpfer, Danana, Gous and Viviers found a moderate correlation, $r = 0,47$, between sense of coherence and job satisfaction (Coetzee & Rothmann, 2000; Rothmann & Fourie, 2002). Coetzee and Rothmann found a moderate relationship between job satisfaction and sense of coherence (Rothmann & Fourie, 2002). In addition to these studies, a number of study projects by post graduate students at UCT have also found correlation between the sense of coherence and job satisfaction (Coetzee & Rothmann, 2000). In contrast to this were the findings of Naude and Rothmann (Rothmann & Fourie, 2002), who in 2000 found no practical significance between job satisfaction and sense of coherence . However, Rothmann found a practically significant correlation of large effect between sense of coherence and job satisfaction in eight organizations (Rothmann & Fourie, 2002). Levert et al (2000) reported significant correlation coefficients between two components of burnout (emotional exhaustion and depersonalization) and sense of coherence.

Sense of coherence will influence an employee's expectations of the job in that it is a positive dispositional orientation to the environment . Stimuli in the work environment are seen as predictable and therefore the employee will be able to have more realistic expectations of the job . Sense of coherence enables the employee to view the work environment as manageable and therefore the employee experiences less feelings of helplessness and lower levels of stress. The employee would also see the work as a challenge and would be willing to spend his energy on it every day . All of this could potentially lead to higher levels of job satisfaction (Coetzee & Rothmann, 2000). Rothmann and Fourie (2002) noted in their study that if the employee perceives his working environment as comprehensible, manageable and meaningful, in other words, has a high sense of coherence, it is likely that he would feel personal

accomplishment. Their results indicated that pharmacists with a strong sense of coherence would experience more job satisfaction. In a study undertaken by Coetzee and Rothmann (2000), the results showed that there was a correlation between the sense of coherence and job satisfaction of managers of an organization in the dairy industry.

Job performance indicates how well employees perform their tasks. Job performance is a multidimensional construct which indicates how well a specific employee is performing their job, the initiative they take, the resourcefulness they show in solving problems, the extent to which they complete tasks, the way they utilize their available resources as well as the time and energy they spend on their tasks. Thus, job performance is a set of behavioural patterns and functions relevant to organizational goals (Rothmann & Fourie, 2002).

Strydom found no significant relationship between sense of coherence and job performance (Rothmann & Fourie, 2002).

Rothmann and Fourie (2002) found no significant relationships between sense of coherence and job performance. This means, they argue, that employees who understand demands and view them as manageable and meaningful are not better performers compared with employees with a weak sense of coherence. This result confirms the findings of Strydom.

Michael Rock (2002) argues that there is a significant correlation between the strength of one's emotional intelligence, one's job performance and one's total work satisfaction.

Jae (MHS, 2002) completed a study in 1997 into emotional intelligence and cognitive ability as predictors of job performance in the banking sector, using the BarOn EQ-i as the measure of emotional intelligence. The correlation between Total EQ and job performance was 0,52 with job performance accounting for 27 percent of the variance. The Intrapersonal, Interpersonal, Adaptability, Stress Management and General Mood composite scales had correlations of 0,48; 0,38; 0,49; 0,52 and 0,39

with job performance. This study found that emotional intelligence was a stronger predictor of on-the-job success than IQ (MHS, 2002).

Sitarenios (MHS, 2002) found that emotional intelligence skills, as measured by the BarOn EQ-i, are significantly related to job performance. In his study, *Emotional Intelligence in the prediction of placement success in the company "Business Incentives"*, the BarOn EQ-i factors that had the greatest ability to discriminate between the high, medium and low performance groups were: Social Responsibility, Optimism, Independence, Self-Actualization and Emotional Self-Awareness (MHS, 2002).

In a study of job performance, the Sense of Competence Questionnaire (SCQ) was administered along with the BarOn EQ-i to a sample of 324 individuals in the United States and Canada. The SCQ is a self-report measure and produces an overall sense of job competence score and three other factor scores. Factor 1 relates to feelings of competence, mastery and an intrinsic sense of achievement. The most closely related factor of the BarOn EQ-i is the Self-Actualization factor and it correlated $r = 0,30$ ($p < .001$) with this factor of the SCQ. Factor 2 of the SCQ is defined in terms of task knowledge and problem solving. The BarOn EQ-i Problem Solving factor had a moderate correlation of $r = 0,34$ ($p < .001$) with this factor. However, Stress Tolerance had the highest correlation with factor 2 ($r = 0,40$, $p < .001$) (Bar-On, 1997). Factor 3 of the SCQ measures concepts related to internal and external locus of control and Bar-On (1997) reports that moderate correlations were found between factor 3 in the BarOn EQ-i Independence factor ($r = 0,32$, $p < .001$) and Reality Testing factor ($r = 0,45$, $p < .001$). In terms of the overall SCQ score, Bar-On reports that correlations with the BarOn EQ-i composite scale scores were high – the SCQ Total Sense of Competence Score was highly correlated with the total EQ score ($r = 0,51$, $p < .001$), the EQ Intrapersonal composite score ($r = 0,52$, $p < .001$) and the EQ Adaptability composite score ($r = 0,47$, $p < .001$).

Table 3.3 below is an attempt by the researcher to outline areas of overlap or similarity between the constructs of sense of coherence and emotional intelligence. These are inferred from the literature review above.

Table 3.3 Presumed areas of overlap between sense of coherence and emotional intelligence

Overlap/similarity	Sense of coherence	Emotional intelligence
Perception	Perception of external stimuli and making sense of these stimuli	Awareness/perception of emotional stimuli – both external and internal.
Components	<p>Three components of sense of coherence</p> <ul style="list-style-type: none"> • Comprehensibility • Manageability • Meaningfulness 	<p>Components of Bar-On's conception of emotional intelligence:</p> <ul style="list-style-type: none"> • Adaptability components: (Reality Testing; Flexibility; and Problem Solving) • Stress management components (Stress Tolerance and Impulse Control) • General mood components (Optimism and Happiness) • Intrapersonal components (Emotional Self-Awareness; Assertiveness; Self-Regard; Self-Actualization; and Independence) • Interpersonal components (Empathy; Social Responsibility and Interpersonal Relationships)
Emotion	Antonovsky claims to understand the Meaningfulness component of SOC as not only the emotional and but also the cognitive meaning of the word. It can therefore be taken to mean the extent to which life makes emotional sense	Emotional intelligence encompasses the ability to accurately perceive and understand emotions in oneself and in others and to make emotional sense of relationships

Table 3.4 below is an attempt by the researcher to outline areas of dissimilarity or difference between the constructs of sense of coherence and emotional intelligence. These are inferred from the literature review above.

Table 3.4 Areas of difference between sense of coherence and emotional intelligence

Area	Sense of Coherence	Emotional Intelligence
Disposition or Trait	Sense of coherence is a global orientation or disposition	Emotional intelligence has been argued to be either a static or changeable personality trait or characteristic
Development	The sense of coherence embraces components of perception, memory, information processing and affect into habitual patterns of appraisal based on repeated experiences of sense making that have been facilitated by the GRRs discussed in Chapter 2 above	Emotional intelligence develops by the interactions of three main influences: heredity learning physical changes in body

Research on the correlation between sense of coherence and emotional intelligence is lacking. In light of the literature review on the two constructs, it is noted that while there are obvious areas of difference between the constructs of sense of coherence and emotional intelligence, there are also areas of overlap.

3.7 CHAPTER SUMMARY

For over one hundred years, the fields of education and psychology have focused considerable attention on the topic of social competence. Mental health practitioners have long recognized that clients differ in their ability to perceive, understand, modulate and express emotion. Gardner's groundbreaking writing on multiple intelligences created the intellectual climate and theoretical foundation for subsequent theorists to expand upon two of his primary intelligences – interpersonal and intrapersonal. Goleman, Salovey and Mayer, and others, transformed and renamed Gardner's two types of social intelligence into the more popular concept of emotional intelligence. Emotional intelligence quickly captured the interest of the media and public at a time at the end of the 20th century when society was

experiencing a number of perplexing and violent ethnic, racial and cultural problems (Pfeiffer, 2001).

Our increasing understanding of emotional intelligence also suggests a promising scientific agenda, one that goes beyond the borders of personality, IQ and academic achievement to study a broader spectrum of the psychological mechanisms that allow individuals to flourish in their lives, their jobs and their families and as citizens in their communities (Goleman, 2001).

In this chapter, the construct of emotional intelligence has been addressed under the headings of historical overview; conceptualisation of emotional intelligence; dimensions of emotional intelligence; measuring emotional intelligence and the relationship between emotional intelligence and other constructs. An attempt has also been made to link the constructs of emotional intelligence and sense of coherence through the relationships they have in common with other constructs at a theoretical level.

It is possible to conclude from a review of the literature that, whilst emotional intelligence is a construct that offers significant potential to account for variances in “life success” (as referred to above), there is a need for rigorous research to underpin the assertion in an organizational setting. Furthermore, traditional pencil-and-paper tests appear unlikely to provide an appropriate vehicle for operationalizing the construct. A competency-based approach to exploring and operationalizing the construct may be more appropriate. Viewing emotional intelligence in a competence context provides a basis for viewing it as a developable trait or ability (Dulewicz & Higgs, 2000).

There are, however, still problems with the construct of emotional intelligence. These problems can be grouped into two related issues: a lack of precision in how emotional intelligence is conceptualized; and a lack of scientifically sound, objective measures of the emotional intelligence construct (Pfeiffer, 2001).

It has been established, through a review of selected literature available on the two constructs of interest, that both emotional intelligence and sense of coherence have been found to have similar relationships with other constructs, such as psychological well-being. It has also been demonstrated that the two constructs have, theoretically, overlaps in terms of dimensional structure.

In Chapter 4 below, an empirical investigation into the relationship between sense of coherence and emotional intelligence is conducted to, firstly, confirm the speculation regarding the overlap discussed above; and to, secondly, address the lack of research in this regard.

CHAPTER 4: EMPIRICAL STUDY

This chapter encapsulates an attempt to integrate the constructs of sense of coherence and emotional intelligence at an empirical level. The empirical study conducted is discussed under the following headings: Population and sample; Measuring instruments; Data gathering; Data processing and Hypothesis.

4.1 POPULATION AND SAMPLE

The population of interest for this study is the South African marine officer population serving in the merchant navy. As described in the first chapter, the *merchant navy*, in South Africa, is the term used to refer to marine activity that is not associated with the navy. The nature of the operations that form part of this industry are diverse and wide-ranging. Included in the activities of this industry are blue water operations (including tanker and cargo vessels); mining vessels (mainly marine diamond mining); towage and salvage; anchor handling and oilfield support vessels; and port operations (National Ports Authority).

As the marine officers who work in port operations are, by definition, near to home, and indeed most work traditional "office hours", it was decided to exclude them from the current study.

Owing to the nature of the operation of the industry and the fact that a large number of the sample population were away from home for extended periods of time, the most appropriate form of sampling method for this study was *haphazard sampling*. Haphazard sampling is a nonprobability sampling technique whereby the sample of participants selected is based on convenience and includes individuals who are readily available. The obvious advantage of using this sampling technique is that the participants can be obtained without spending a great deal of time or money (Christensen, 1997). However, the disadvantage is that one then has to be very careful and conservative about the generalizations that one generates from such a sample as the extraneous or confounding variables may not be too well controlled (Howell, 1989). In the case of marine officers in the South African Merchant Navy it

was felt that this disadvantage would not have too significant an influence as the population of marine officers has, as a result of a number of historical factors, remained rather homogenous over the years. It is only in recent years that the demographics of this population have begun to change.

Marine officers working for three South African marine companies were therefore approached to participate in the study, after the management of these companies had given permission. The three companies and the nature of their operation are outlined below:

- **Smit Marine South Africa**

Smit Marine South Africa prides itself on being the leading provider of specialist or nonconventional marine services. The company is wholly owned and managed by Smit International, a Dutch company based in Rotterdam. The company has recently restructured worldwide and services have been streamlined into four pillars: salvage; terminal operations; harbour and towage services; and transport and heavy lift operations. The South African operation currently boasts three of the four functions and these are detailed below:

Salvage – This is the most hazardous of the three product groupings and involves the salvage of vessels that have run into an emergency at sea, be it a fire onboard, engine failure, taking on water or running aground off the coast. Weather conditions are inevitably perilous, which complicates the completion of the salvage operation.

Terminal operations – These operations are confined to the support of terminal operations off the coast of Africa. Terminals can range in terms of type and nature. Operations are hazardous and involve arduous and labour intensive work. Officers serving on these vessels usually complete 12 hour watches.

Transport and heavy lift – The vessels and operations classed within this product grouping range from the towing of vessels by one of the deep ocean tugs to the SA Agulhas which functions as an Antarctic relief vessel.

The organization currently employs, within the South African operation, approximately 420 seafarers, of which approximately 200 are marine officers. Typically, the officers will serve between three and four months at sea at any one time. The work is extremely hazardous and the living conditions are confined.

- **Unicorn Shipping**

Unicorn Shipping is the shipowning arm of the Durban-based and JSE-listed Grindrod-Unicorn Group Limited and is South Africa's oldest and only national shipowner. Unicorn Shipping boasts first-class South African and international oil tanker customers and partnerships, served by a modern fleet of tankers of varying sizes and types, either custom built or purchased for particular employment. Some 70 qualified South African officers and ratings are employed on Unicorn ships, with foreign staff contracted to make up the shortfalls. The strategy of Unicorn Shipping is to be the preferred supplier of specialist tanker vessels to the Southern African petrochemical industry and to become a major player in sub-Saharan Africa and in international markets. The company also provides bulk carriers and is involved in carrying specialty liquid cargoes and chemicals as well as oil. It currently has 11 ships in South Africa and 15 in foreign yards to service its various operations. Unicorn Shipping falls into the "blue water" ambit of the merchant navy's activities. Officers are at sea for extended periods of time that can range from three to five months at any one time.

- **DeBeers Marine**

DeBeers Marine is active in the offshore diamond mining industry. The vessels operate on an "anchor-spread" in "concession" fields, which are predominantly situated in Namibian territorial waters. In 2000, De Beers signed an agreement with the Namibian Government and Namdeb to form

DeBeers Marine Namibia (Pty) Limited. DeBeers Marine and DeBeers Marine Namibia are world leaders in offshore diamond exploration and mining. DeBeers Marine is constantly developing new technologies to maintain its position as an industry leader in offshore mining. Currently the company owns four production vessels, with some of the world's most advanced technological systems onboard. The company draws on the South African marine officer market but is in the process of employing and developing Namibian citizens. Officers serve 28 days at sea followed by 28 days at home. While this means that they are not away from home for extended periods of time, the nature of their operation is hazardous and extremely demanding of employees. Twelve-hour shifts for the entire 28-day period at sea are not uncommon. The questionnaires were only distributed to South African marine officers in order to ensure consistency in terms of the sample. DeBeers currently employs approximately 600 seagoing personnel of which approximately 100 are marine officers.

The total population of interest for this study is approximately $p = 600$. The South African Maritime Safety Authority (SAMSA), under the auspices and control of which the industry functions and which is an agency of the South African Department of Transport, keeps records of all marine officers who hold a South African Certificate of Competency. This is necessary for an individual to work in the capacity of a marine officer.

Of this population ($p = 600$), the researcher was able to identify a sample population of $n = 54$, which comprises the South African marine officers currently serving in the three companies detailed above.

4.2 MEASURING INSTRUMENTS

Two instruments will be used and these are discussed below.

4.2.1 Measurement of sense of coherence

Antonovsky's SOC-29 is a 29-item, 7-point semantic differential scale (Antonovsky, 1996; Lundqvist, 1995; Gilbar, 1998) with two anchoring phrases. Its design was guided by Guttman's facet theory. It is a systematic closed questionnaire and was based on a comprehensive theoretical model. It is important to stress that it is a self-report measure but it can also be used for interview purposes. It measures the three dimensions that make up the sense of coherence construct: comprehensibility, manageability and meaningfulness. There are 11 comprehensibility, 10 manageability and 8 meaningfulness items. Thirteen of the items are formulated negatively and need to be reversed in the scoring process. In 26 studies using the SOC-29 the Cronbach alpha measure of internal consistency has ranged from 0,82 to 0,95 (Antonovsky, 1993). Gilbar (1998) also reports high measures of internal consistency, with Cronbach's alpha ranges from 0,84 to 0,93. Test construction and examination of the questionnaire by colleagues points to a high level of content, face and consensual validity. The few data sets available point to a high level of construct validity (Antonovsky, 1993). It is designed to measure the degree to which subjects feel they have a sense of control over their own lives (the manageability scale –MA), that life has meaning (the meaningfulness scale –ME) and that their social life is understandable (the comprehensibility scale –C). The instrument provides an overall scale score as well as three subscale scores (Lundqvist, 1995).

In constructing the SOC scale, Antonovsky claims to have made a conscious, theoretically-guided choice to have each scale item include four facets, which describe a stimulus, and a fifth, the sense of coherence facet, which expresses one of the three components of the construct. No two items of the final 29-item scale have an identical facet structure. It has been reported that respondents find the SOC scale items interesting and challenging. Completion of the SOC-29, whether by means of interview or self-completion, takes approximately 15 to 20 minutes. One

particular problem which merits further investigation has been noted by several researchers is the practice of some respondents to give only extreme responses (1 or 7) (Antonovsky, 1993).

4.2.1.1 *Reliability*

(a) *Internal consistency*

As mentioned above, in 26 studies using the SOC-29, the Cronbach alpha measure of internal consistency has ranged from 0,82 to 0,95. An instrument can be said to be reliable only with respect to a given population. The fact that unflinching high internal consistency has been found in a considerable variety of populations, in different languages and cultures – though all Western – is of significance (Antonovsky, 1993).

(b) *Test-retest*

The theoretical model of the sense of coherence construct postulates that an individual's sense of coherence is stabilized by the end of young adulthood, thereafter showing only minor fluctuations, barring major changes in patterns of life experiences. This important theoretical commitment has yet to be tested and there have been relatively few test-retest reports. In a study among Afrikaans farmers and businessmen, after five weeks a correlation coefficient of $r = 0,97$ was obtained (Antonovsky, 1993).

4.2.1.2. *Validity*

(a) *Content, face and consensual validity*

The construction of the SOC-29 scale promoted content validity. Inductively, *post hoc* examination of the scale suggested face validity in that it was adequately representative of the theoretical construct. Consensual validity, estimated by the reaction of colleagues to the

published scale, appears high (Antonovsky, 1993). Antonovsky argues that, given the considerable variety of populations studied and the number of researchers engaged in using the published scale, it would appear reasonable to conclude that the scale, as it stands, has content validity.

4.2.1.3 *Known groups*

The purpose of Table 4.1 below is to provide normative data. The table presents the sense of coherence means and standard deviations of a variety of samples that have appeared in published studies. The data also enables one to relate to the idea that a valid scale should produce differences on mean scores among samples that would be expected, on theoretical grounds, to differ (Antonovsky, 1993).

Table 4.1 Normative data from published studies using the SOC-29 (Antonovsky, 1993).

Sample	N	Mean	SD	CVA*	Ref. No.
Swedish high-risk childhood, 41-56	148	152,6	22,0	0,144	20
Kibbutz fathers (controls)	67	152,5	14,5	0,095	33
Israeli retirees: men, age 65	428	152,2	22,8	0,187	41
Kibbutz men, age 65	130	152,2	22,8	0,150	41
Kibbutz mothers (controls)	67	151,0	15,3	0,101	33
Israeli medical students at entry	93	150,2	16,5	0,110	18
Finnish grouped. Adult sample, men	340	150,2	21,9	0,146	24
Kibbutz fathers, disabled children	67	146,3	19,4	0,133	33
Finnish grouped. Adult sample, women	329	146,1	22,7	0,155	24
Kibbutz women, age 60	130	145,7	20,2	0,139	41
Israeli retirees: women, age 60	368	145,0	23,4	0,161	41
Czech controls in cancer study	153	145,0	-	-	25
Kibbutz mothers, disabled children	67	140,1	22,6	0,161	31
US. male patients at VA clinics 55+	240	139,6	36,4	0,260	19
Finnish university. students, 52% women	117	138,6	23,1	0,167	43
New Zealand Chronic pain, 78% women	107	138,6	14,9	-	37
Israeli Jewish national sample	297	136,5	19,8	0,145	2
US production workers, 76% women	111	133,0	26,5	0,199	21
Israeli cerebral palsy, 18-33	34	131,1	0,8	-	30
US undergraduates, 68% women	307	129,5	24,5	0,189	38
Czech cancer patients	17	117,0	-	-	25

CVA: coefficient of variation (standard deviation/mean), a measure of heterogeneity of responses in a sample.

4.2.1.4 *Factor structure of the SOC Scale*

In light of the facet-theoretical design of the measure, there is no basis for deriving distinguishable subscores for comprehensibility, manageability and meaningfulness. None of the published studies report a factor analysis of the SOC Scale (Antonovsky, 1993).

Antonovsky (1996) reaches the following conclusions regarding the scale:

- Firstly, there is little doubt that the 29-item SOC Scale have has been found to be consistently feasible, reliable and valid. This is true across cultures, social classes and ethnic groups as well as for men and women of all ages.
- Secondly, the prevalence of existing evidence is at least consistent with the sense of coherence health hypothesis. The correlations with a wide variety of measures of well-being and health on the one hand and distress and maladaptation on the other are consistently strong. Very few of the studies, however, are longitudinal and hence nothing can be said about evidence in favour of causality. It should also be noted that reference here is to one type of measure of a complex construct.

4.2.2 Measurement of emotional intelligence

Based on 19 years of research by Reuven Bar-On and tested on over 48 000 individuals worldwide, the BarOn Emotional Quotient Inventory (BarOn EQ-i) is designed to measure a number of constructs related to emotional intelligence. The BarOn EQ-i consists of 133 items and takes approximately 30 minutes to complete (EI Consortium, 2001). Items are answered on a five-point Likert Scale, ranging from "Not True of Me" to "True of Me" (MHS, 2002). It gives an overall emotional intelligence score as well as scores for the following five composite scales and 15 subscales (EI Consortium, 2001):

(a) Intrapersonal scales – these measure the ability of an individual to know himself and his feelings:

- Emotional self-Awareness – the ability to recognize and understand one's feelings and emotions, differentiate between them and know what caused them and why
- Assertiveness – the ability to express feelings, beliefs and thoughts and defend one's rights in a nondestructive way
- Self-regard – the ability to look at and understand oneself, respect and accept oneself, accepting one's perceived positive and negative aspects as well as one's limitations and possibilities
- Self-actualization – the ability to realize one's potential capacities and to strive to do that which one wants to do and enjoys doing
- Independence – the ability to be self-reliant and self-directed in one's thinking and actions and to be free of emotional dependency

(b) Interpersonal scales - The measure the individual's ability to interact, relate well with others and possess good social skills:

- Interpersonal relationship – the ability to establish and maintain mutually satisfying relationships that are characterized by intimacy and by giving and receiving affection
- Empathy – the ability to be attentive to, to understand and to appreciate the feelings of others
- Social responsibility – the ability to demonstrate oneself as a cooperative, contributing and constructive member of one's social group

(c) Adaptability scales - The measure of the individual's ability to be flexible, realistic and able to problem solve:

- Problem solving – the ability to identify and define problems as well as to generate and implement potentially effective decisions
- Reality testing – the ability to assess the correspondence between what is experienced (the subjective) and what in reality exists (the objective)
- Flexibility – the ability to adjust one's emotions, thoughts and behaviour to changing situations and conditions.

(d) Stress Management scales – These measure the individual's ability to work well under pressure without losing control:

- Stress tolerance – the ability to withstand adverse events and stressful situations without falling apart by actively and confidently coping with stress
- Impulse control – the ability to resist or delay an impulse, drive or temptation to act

(e) General mood scales – These measure the individual's ability to be optimistic and cheerful and to create a positive atmosphere in the workplace.

- Happiness – the ability to feel satisfied with one's life, to enjoy oneself and being with others and to have fun
- Optimism – the ability to look at the brighter side of life and to maintain a positive attitude even in the face of adversity

The BarOn EQ-i was developed using rigorous test-development procedures (MHS, 2002). In North America, the norm sample is quite large, almost 4000 (N = 3 831). The people who made up this sample were diverse with regard to age, socio-economic level, educational background and occupational/professional background (Rock, 2002).

4.2.2.1 *Reliability studies*

The reliability studies conducted on the BarOn EQ-i have focused on internal consistency and test-retest stability (Bar-On, 1997).

(a) Internal consistency

The table below presents the internal consistency coefficients for the BarOn EQ-i subscales based on seven population samples. The average Cronbach's alpha coefficient is high for all of the subscales, ranging from a low of 0,69 (Social Responsibility) to a high of 0,86 (Self-Regard), with an overall average internal consistency of 0,76 (Bar-On, 1997). These results indicate very good reliability.

Table 4.2 Internal consistency coefficients for the BarOn EQ-i subscales examined with Cronbach's Alpha on North American samples and Argentinean, German, South African, Nigerian, Israeli and Indian samples

BARON EQ-I	*NA1	*NA2	*NA3	Argentinean	German	South African	Nigerian	Israeli	Indian	Average
Emotional self-awareness	0,80	0,78	0,80	-	-	0,76	-	-	-	0,79
Assertiveness	0,81	0,77	0,65	0,77	0,81	0,78	0,69	0,80	0,75	0,76
Self-regard	0,89	0,87	0,85	0,90	0,87	0,89	0,84	0,84	0,81	0,86
Self-actualization	0,80	0,80	0,68	0,85	0,75	0,75	0,76	0,76	0,71	0,76
Independence	0,79	0,77	0,74	0,73	0,75	0,65	0,68	0,64	0,73	0,72
Empathy	0,75	0,77	0,75	-	-	0,69	-	-	-	0,74
Interpersonal relationship	0,77	0,83	0,78	0,74	0,75	0,74	0,75	0,74	0,71	0,76
Social responsibility	0,70	0,83	0,78	0,68	0,68	0,62	0,68	0,64	0,62	0,69
Problem solving	0,80	0,84	0,75	0,81	0,75	0,74	0,76	0,76	0,69	0,77
Reality testing	0,75	0,80	0,74	0,80	0,78	0,69	0,59	0,75	0,69	0,73
Flexibility	0,77	0,74	0,74	0,79	0,66	0,69	0,61	0,62	0,68	0,70
Stress tolerance	0,84	0,81	0,74	0,86	0,85	0,77	0,67	0,81	0,83	0,80
Impulse control	0,79	0,80	0,79	0,88	0,83	0,77	0,73	0,80	0,77	0,80
Happiness	0,81	0,83	0,74	0,86	0,82	0,75	0,71	0,80	0,76	0,9
Optimism	0,82	0,82	0,77	-	-	0,72	-	-	-	0,79

* Population Abbreviations: NA1 = North American Normative Sample; NA2 = North American Military Sample; NA3 = North American Military Sample.

In 1998, Sitarenios conducted a study into the Item-Total correlations for each of the 15 BarOn EQ-i subscales and found that all of the Item-Total correlations were greater than 0,30 (MHS, 2002).

(b) Test-retest reliability

Test-retest reliability refers to the stability of an instrument over time (Rust and Golombok, 1989). Based on one study, the average stability coefficient is 0,85 (values ranged from 0,78 to 0,92) after one month and 0,75 (values ranged from 0,55 to 0,82) after four months (Bar-On, 1997).

4.2.2.2 *Validity studies*

Nine types of validity study have been conducted in over six countries over the past 17 years – content, face, factorial, construct, convergent, divergent, criterion-group, discriminant and predictive validity (Bar-On, 1997). Some of these are briefly discussed below:

(a) Content and face validity

Bar-On (1997) reports that, with respect to this type of validation, the BarOn EQ-i was validated principally by the systematic way in which the items were generated and selected, which involved expressing the essence of each factor based on the definitions. In addition, proofreaders were asked to make suggestions regarding the specific wording of the items so that each item would be easily understood. The effectiveness of this type of validation was consequently examined by item analysis. Direct feedback regarding face validity was obtained from 39 subjects who were interviewed at an early stage of the BarOn EQ-i development, while information of a more indirect nature has been gathered from the thousands of people who have completed the inventory over the years . Based on the above procedures, Bar-On argues that it is thought that the final form of the inventory has adequately satisfied the requirements of content and face validity.

(b) Factorial Validity

Factorial analysis was applied to the data to examine the BarOn EQ-i's subscale structure (or factor structure) to assess the extent to which it is empirically and theoretically justified (Bar-On, 1997). Bar-On argues that based on the research undertaken it can be concluded that there is sufficient empirical support for the 1-5-15 (total EQ scale-composite scales-subscals) structure of the BarOn EQ-i, which means that this inventory measures a good hierarchical structure of noncognitive intelligence.

(c) Construct validity

The BarOn EQ-i was subjected to extensive construct validity analyses to evaluate how well it actually assesses what it is designed to assess. These studies were carried out by correlating the inventory's subscale scores with various scale scores of other measures (Bar-On, 1997). The measures used in these studies included the following: Sixteen Personality Questionnaire (16PF); Minnesota Multiphasic Personality Inventory-2 (MMPI-2); Eysenck Personality Questionnaire (EPQ); Personality Assessment Inventory (PAI); Ninety Symptom Check List (SCL-90); Personality Orientation Inventory (POI); Short Acculturation Scale (SAS); Beck Depression Inventory; Zung Self-Rating Depression Scale; and Kirkcaldy Quality of Life (KQoL) (Bar-On, 1997). Bar-On reports that the correlations are, overall, moderate, ranging for the most part from correlation coefficients of approximately 0,30 to coefficients at the upper end of approximately 0,70. He argues that the coefficients are high enough to support that the BarOn EQ-i subscales are measuring the constructs that they were intended to measure and yet not so high as to suggest that the inventory is a duplication of existing inventories. Overall, Bar-On asserts, the results demonstrate that the BarOn EQ-i possesses good construct validity.

(d) Convergent validity

The convergent validity of the BarOn EQ-i was examined to assess whether this inventory correlates with external measures believed to tap the same or similar constructs (Bar-On, 1997). This validity was examined in several research studies. Bar-On argues that the findings generated by these research studies indicate that the BarOn EQ-i has demonstrated adequate convergent validity and that these findings reinforce the BarOn EQ-i construct validity results presented above.

Dawda and Hart (MHS, 2002) evaluated the reliability and validity of the BarOn EQ-i in a sample of university students in 2000 within the context of a larger programme of research examining the association between emotion and personality. Within this

study the BarOn EQ-i scores were correlated with the NEOFFI (which measures Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness), Beck Depression Inventory, Intensity of Affective Experience, Symptom Check List and Alexthymia. The convergent and discriminant validities suggested that the BarOn EQ-i taps a fairly broad range of related emotional constructs (MHS, 2002).

It has been demonstrated that the BarOn EQ-i is capable of providing a reliable and valid measure of noncognitive intelligence. The emotionally healthy, well-functioning and potentially successful individual is expected to receive average to above average scores on the BarOn EQ-i (Bar-On, 1997). Indeed Bar-On claims that the higher the scores of most on the scales, the more positive the prediction for general success in meeting environmental demands and pressure.

Within the industrial and corporate setting, Bar-On (1997) argues that, because of its brevity and the multifaceted information that the BarOn EQ-i provides, it can be used by psychologists as well as human resources and organizational development consultants as a screening device designed to select emotionally intelligent, psychologically healthy and potentially successful personnel.

Based on all of the above, the researcher determined that, for the purposes of this study, the BarOn EQ-i provided the most suitable measurement of emotional intelligence, especially on the basis of its documented reliability and validity.

4.3 DATA GATHERING

The convenience sample was identified and permission obtained from the respective companies to approach their marine officers. Owing to the nature of the operation of these companies, the questionnaires discussed above were combined into a single "pack" with a covering letter that contained:

- the purpose of the study being undertaken
- the details of the researcher, including contact details

- the fact that participation in the study was purely voluntary
- the confidentiality of the responses obtained
- how to complete the questionnaires
- how to return the completed questionnaires to the researcher
- the closing date for participation in the study
- thanks to those who chose to participate

These packs were then distributed to the vessels on which the marine officers are currently serving via the Logistics, Operations and Human Resource Departments of the company concerned.

4.4 DATA PROCESSING

The completed questionnaires were returned to the researcher by each organization as they were received. The questionnaires received from Unicorn officers were posted to the researcher via the Unicorn Tankers Office in Durban. The completed questionnaires from DeBeers Marine officers were emailed to the researcher from the respective vessels. The completed questionnaires from Smit Marine South Africa officers were handed directly to the researcher. The raw demographic data from each questionnaire was entered onto a Microsoft Excel spreadsheet. and the questionnaires were then scored, analyzed and interpreted and this information was also added to the raw data spreadsheet. Accepted statistical means were then used to provide data on the descriptive statistics of the sample as well as the reliability and of the study. To this end, use was made of the SPSS software package. Pearson's product-moment correlation coefficient was employed to determine whether the relationship between these two concepts is statistically significant. An alpha coefficient of 0,5 is used for this. Regression analysis will also be undertaken to examine the relationship between these constructs and to identify practically significant relationships between the two constructs.

4.5 HYPOTHESIS

Pearson's product-moment correlation coefficient will be used to determine whether or not the researcher will accept or reject the null hypothesis delineated below:

H1: There is a practically significant relationship between the emotional intelligence and sense of coherence in marine officers serving in the South African merchant navy.

HO: There is no relationship between the emotional intelligence and sense of coherence in marine officers serving in the South African merchant navy

4.6 CHAPTER SUMMARY

In this chapter the empirical study conducted was discussed under the headings of: Population and sample; Measuring instruments; Data gathering, Data processing; and Hypothesis.

As a result of the nature of the industry's operation, it was necessary to place a great reliance on self-report questionnaires in order to gather the raw data. Therefore, the decision was taken to make use of both the SOC-29 and the BarOn EQ-i questionnaires to measure the constructs of sense of coherence and emotional intelligence.

Both instruments have proven themselves to be sound psychological measurements of the respective constructs. The sample size is small and very homogenous. Extraneous variables resulting from the sampling method, apathy of the sample population and the demographics of the sample, were not controlled for. The results of the study contained in the chapter below may therefore have been caused or affected by an extraneous variable for which the researcher did not build in controls.

The results of this empirical study are discussed in Chapter 5.

CHAPTER 5: RESULTS

The results of the empirical investigation conducted into the relationship between sense of coherence and emotional intelligence in South African marine officers are discussed under the following headings: Reporting of the Results; and Interpretation of the Results.

5.1 REPORTING OF THE RESULTS

5.1.1 Sample

Of the 260 marine officers who were sent questionnaires and asked to participate in the study, only 56 forwarded the completed questionnaires via the channels outlined in the previous chapter to the researcher. This represents a response rate of 22 percent. Of these, the researcher disregarded two questionnaires as the information provided was not complete and therefore could not be used. Thus the sample was reduced to 54 South African marine officers. The demographics of this sample are outlined in Table 5.1 below.

Table 5.1 Sample Demographic Information

Demographic data	Measure
Age	Mode < 30 – 39 years >
Gender	100% Male
Ethnic origins	78% white (15% Coloured, 2% African & 5% Asian)
Years at sea	Mode < 20 years plus >
Highest level of education	Mode < Technikon/College >

5.1.2 Internal consistency

Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the underlying constructs – the construct being the hypothetical variable that is being measured (Kerlinger, 1986). Alpha coefficients range in value

from 0 to 1 and are used to describe the reliability of psychometric instruments (Kerlinger, 1986). The higher the score, the more reliable the generated scale. Nunnally and Bernstein have indicated 0.80 to be an acceptable reliability coefficient (Rothmann & Fourie, 2002).

5.1.2.1 SOC-29

Table 5.2 below sets out the alpha coefficients obtained for the SOC-29 questionnaires administered to the sample population.

Table 5.2 Alpha Coefficients of SOC-29

Components	Number of items	Alpha coefficient
Total SOC	29	0,85
Comprehensibility	11	0,72
Manageability	10	0,79
Meaningfulness	8	0,68

Coefficients range from 0.68 (meaningfulness) to 0.85 (Total SOC). As can be seen from the alpha values above, all are below the cut-off point (alpha > 0.80) recommended by Nunnally and Bernstein, with the exception of the coefficient for Total SOC. However, these coefficients indicate acceptable internal consistency for both the total SOC score as well as the three subscales.

5.1.2.2 BarOn EQ-i

Table 5.3 below sets out the alpha coefficients obtained for the BarOn EQ-i questionnaires administered to the sample population.

Table 5.3 Alpha Coefficients of BarOn EQ-i

Components	Number of items	Alpha coefficient
Total EQ & factors	133	0,95
Total EQ	133	0,97
Total EQ & 5 subscales	133	0,94
15 factors	133	0,94
Intrapersonal subscale	40	0,93
Interpersonal subscale	28	0,88
Adaptability subscale	26	0,96
Stress management subscale	18	0,88
General mood subscale	17	0,93

As can be seen from the alpha values above, all are above the cut-off point (alpha > 0,80) recommended by Nunnally and Bernstein. Coefficients range from 0,88 (interpersonal & stress management) to 0,97 (Total EQ). This indicates acceptable internal consistency for both the Total EQ score, the subscale scores as well as the individual factor scores.

5.1.3 Sense of coherence

The raw data of the sense of coherence questionnaires is summarized in Table 5.4 below. Only the total SOC score was used to generate these descriptive statistics.

If one inserts the results of this study, in terms of the total SOC score, into the normative data contained in Table 5.5 below, one can see that the total SOC score mean of the sample of South African marine officers is well within the top 50 percent of the table.

Table 5.4 Descriptive Statistics: SOC Scores

Descriptive Statistics										
	N	Minimum	Maximum	Mean	Std.	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Comprehensib	54	30	69	50.74	7.872	61.969	-.471	.325	.410	.639
Manageability	54	33	68	53.52	8.386	70.330	-.483	.325	-.485	.639
Meaningfulness	54	31	55	44.33	6.754	45.623	-.131	.325	-1.000	.639
SOC Total	54	108	192	148.59	20.128	405.152	-.225	.325	-.554	.639
Valid N (listwise)	54									

Table 5.5 Normative data from published studies using the SOC-29

Sample	N	Mean	SD	CVA*	Ref. No.
Swedish high-risk childhood, 41-56	148	152,6	22,0	0,144	20
Kibbutz fathers (controls)	67	152,5	14,5	0,095	33
Israeli retirees: men, age 65	428	152,2	22,8	0,187	41
Kibbutz men, age 65	130	152,2	22,8	0,150	41
Kibbutz mothers (controls)	67	151,0	15,3	0,101	33
Israeli medical students at entry	93	150,2	16,5	0,110	18
Finnish grouped. Adult sample, men	340	150,2	21,9	0,146	24
South African marine officers	54	149	20,13	0,14	
Kibbutz fathers, disabled children	67	146,3	19,4	0,133	33
Finnish grouped. Adult sample, women	329	146,1	22,7	0,155	24
Kibbutz women, age 60	130	145,7	20,2	0,139	41
Israeli retirees: women, age 60	368	145,0	23,4	0,161	41
Czech controls in cancer study	153	145,0	-	-	25
Kibbutz mothers, disabled children	67	140,1	22,6	0,161	31
U.S. male patients at VA clinics 55+	240	139,6	36,4	0,260	19
Finnish university students, 52% women	117	138,6	23,1	0,167	43
New Zealand chronic pain, 78% women	107	138,6	14,9	-	37
Israeli Jewish national sample	297	136,5	19,8	0,145	2
U.S. production workers, 76% women	111	133,0	26,5	0,199	21
Israeli cerebral palsy, 18-33	34	131,1	0,8	-	30
U.S. undergraduates, 68% women	307	129,5	24,5	0,189	38
Czech cancer patients	17	117,0	-	-	25

5.1.4 Emotional intelligence

Table 5.6 Emotional Intelligence Descriptive Data (Standardised Scores)

	Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std.	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Inter	54	71	130	100.00	14.989	224.679	.080	.325	-.818	.639
Intra	54	68	129	100.04	15.047	226.414	-.411	.325	-.533	.639
Adap	54	70	135	99.93	15.005	225.164	.308	.325	-.273	.639
Stress	54	73	141	99.93	14.974	224.221	.540	.325	.272	.639
Mood	54	69	127	100.02	15.000	225.000	-.358	.325	-.914	.639
Total EQ	54	64	130	99.57	13.691	187.457	-.007	.325	-.038	.639
Valid N (listwise)	54									

The descriptive statistics for the standardized scores obtained on the BarOn EQ-i are outlined in Table 5.6 above. Scores on Total EQ ranged from a minimum 64 to a maximum of 130, with a mean of 99,57.

5.1.5 Correlations between sense of coherence and emotional intelligence

According to Cohen, the following cut-off points are appropriate for the practical significance of correlations between constructs (Coetzee & Rothmann, 2000):

$r = 0,10$ – small effect

$r = 0,30$ – medium effect

$r = 0,50$ – large effect

For the purposes of this study, r -values larger than 0,30 will be viewed as practically significant.

The correlations between the SOC-29 total and subscales and the BarOn EQ-i total are given in table 5.7 below.

Table 5.7 Product-moment correlation coefficients between SOC Total and SOC Subscales and BarOn EQ-i Total

Item	Total SOC	Comprehensibility	Manageability	Meaningfulness
Total EQ	0,73**	0,61**	0,66**	0,62**

** Correlation is significant at the 0,01 level

Table 5.7 shows that total EQ correlates positively (large effect) with total SOC, Comprehensibility, Manageability and Meaningfulness with correlation coefficients ranging from 0,61 (Comprehensibility) to 0,73 (total SOC).

A scatter plot is used below (figure 5.1) to illustrate graphically the relationship between total SOC and total EQ within the present sample of marine officers

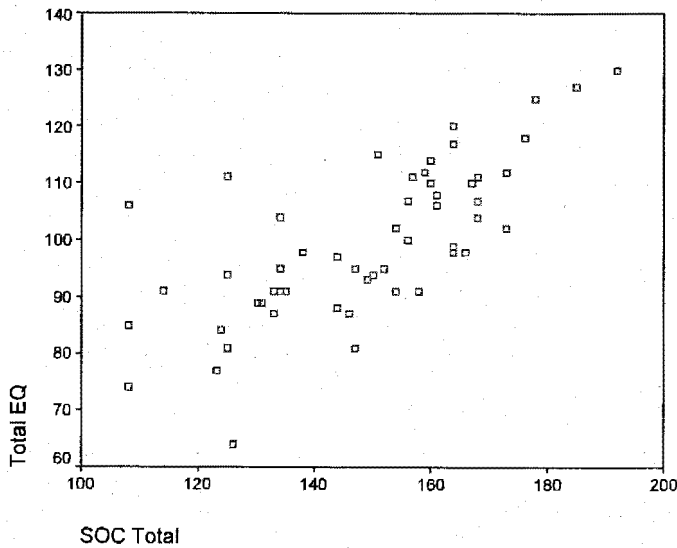


Figure 5.1 Relationship between total SOC and total EQ

The product moment correlations between the total SOC-29 and the subscales of the BarOn EQ-i are given in table 5.8 below.

Table 5.8 Product-moment correlation coefficients between the Total SOC and BarOn EQ-i subscales

Item	Intrapersonal	Interpersonal	Adaptability	Stress Management	General Mood
Total SOC	0,69**	0,54**	0,68**	0,58**	0,71**

** Correlation is significant at the 0,01 level

Table 5.8 shows that total SOC correlates positively (large effect) with all five of the subscales of the BarOn EQ-i with coefficients ranging from 0,54 (Interpersonal) to 0,71 (General Mood).

The product-moment correlations between the subscales of the SOC-29 and the subscales of the BarOn EQ-i are given in table 5.9 below.

Table 5.9 Product-moment correlation coefficients between the subscales of the SOC-29 and the subscales of the BarOn EQ-i

Item	Intrapersonal	Interpersonal	Adaptability	Stress Manage	General Mood
Comprehensibility	0,59**	0,42**	0,60**	0,55**	0,57**
Manageability	0,61**	0,50**	0,61**	0,50**	0,60**
Meaningfulness	0,60**	0,50**	0,56**	0,45**	0,69**

** Correlation is significant at the 0,01 level.

Table 5.9 indicates that Comprehensibility is positively correlated (large effect) with the Intrapersonal, Adaptability, Stress Management and General Mood subscales of the BarOn EQ-i. Correlation coefficients range from 0,55 (Stress Management) to 0,60 (Adaptability). Comprehensibility is also positively correlated (medium effect) to the Interpersonal subscale ($r = 0,42$).

Manageability is positively correlated (large effect) with the Intrapersonal, Interpersonal, Adaptability, Stress Management and General Mood Subscales of the BarOn EQ-i. Correlation coefficients range from 0,50 (Interpersonal and Stress Management) to 0,61 (Intrapersonal and General Mood).

Meaningfulness is positively correlated (large effect) to the Intrapersonal, Interpersonal Adaptability and General Mood subscales of the BarOn EQ-i. Correlation coefficients range from 0,50 (Interpersonal) to 0,69 (General Mood). Meaningfulness is also positively correlated (medium effect) to Stress Management ($r = 0,45$).

5.1.6 Regression analysis

Regression analysis provides an estimation of the linear relationship between a dependent variable and one or more independent variables or covariates (Kerlinger, 1986).

A regression analysis was run with SOC total as the dependent variable and the total EQ score and five subscales of the BarOn EQ-i as the independent variables. The results of this analysis are contained in table 5.10 below.

Table 5.10 Regression analysis between SOC Total Score and subscales of BarOn EQ-i

Dependent variable	Variable entered	Adjusted R2	Beta	T	Sig
SOC Total	Intrapersonal	0,459	0,685	6,78	0,000*
	Interpersonal	0,277	0,540	4,621	0,000*
	Adaptability	0,449	0,677	6,641	0,000*
	Stress Management	0,318	0,575	5,074	0,000*
	General Mood	0,489	0,706	7,195	0,000*
	Total EQ	0,516	0,725	7,586	0,000*

* $p < 0.0001$

Results contained in table 5.10 above indicate that intrapersonal factors contribute significantly to total SOC, explaining more than 45 percent of SOC total variance. In addition, General Mood factors also contributed significantly to total SOC variance, explaining more than 48 percent of the variance. Total EQ explains over 51 percent of the variance in total SOC. The rest of the subscales of the BarOn EQ-i provided explanations for variance ranging from 28 percent (Interpersonal) to 45 percent (Adaptability).

A regression analysis was also run with each of the subscales of the SOC-29 and each of the subscales of the BarOn EQ-i. The results of these analyses are presented in tables 5.11, 5.12 and 5.13 below.

Table 5.11 Regression analysis between Comprehensibility subscale and the subscales of the BarOn EQ-i

Dependent variable	Variable entered	Adjusted R2	Beta	T	Sig
Comprehensibility	Intrapersonal	0,337	0,592	5,290	0,000*
	Interpersonal	0,162	0,422	3,353	0,001
	Adaptability	0,348	0,600	5,410	0,000*
	Stress Management	0,284	0,546	4,697	0,000*
	General Mood	0,311	0,569	4,990	0,000*
	Total EQ	0,365	0,614	5,614	0,000*

* p < 0.0001

The five subscales provided an explanation of the variance of the Comprehensibility subscale of the SOC-29 ranging from 16 percent (Interpersonal) to 35 percent (Adaptability). Total EQ provided an explanation for 37 percent of the variance in this subscale of the SOC-29.

Table 5.12 Regression analysis between manageability subscale and subscales of BarOn EQ-i

Dependent variable	Variable entered	Adjusted R2	Beta	T	Sig
Manageability	Intrapersonal	0,360	0,610	5,545	0,000*
	Interpersonal	0,231	0,495	4,110	0,000*
	Adaptability	0,359	0,609	5,540	0,000*
	Stress Management	0,239	0,503	4,201	0,000*
	General Mood	0,353	0,604	5,466	0,000*
	Total EQ	0,428	0,662	6,370	0,000*

* p < 0.0001

The results contained in table 5.12 indicate that the total EQ contributes significantly to the subscale of Manageability, explaining more than 43 percent of Manageability variance. The rest of the subscales of the BarOn EQ-i provided explanations for variance ranging from 23 percent (Interpersonal) to 36 percent (Intrapersonal).

Table 5.13 Regression analysis between meaningfulness subscale and subscales of BarOn EQ-i

Dependent variable	Variable entered	Adjusted R2	Beta	T	Sig
Meaningfulness	Intrapersonal	0,342	0,595	5,339	0,000*
	Interpersonal	0,237	0,502	4,182	0,000*
	Adaptability	0,304	0,563	4,912	0,000*
	Stress Management	0,191	0,454	3,672	0,001
	General Mood	0,468	0,692	6,905	0,000*
	Total EQ	0,375	0,622	5,728	0,000*

* P < 0.0001

The results contained in table 5.13 indicate that the General Mood contributes significantly to the subscale of Meaningfulness, explaining more than 46 percent of Meaningfulness variance. The rest of the subscales of the BarOn EQ-i provided explanations for variance ranging from 19 percent (Stress Management) to 34 percent (Intrapersonal). Total EQ explained 38 percent of the variance in this subscale of the SOC-29.

5.2 INTERPRETATION OF THE RESULTS

5.2.1 Sense of coherence

Sense of coherence scores obtained on the SOC-29 can range from a low of 29 to a high of 203 (Nanin, 2001). The mean sense of coherence score was 149, as presented in table 5.2, with a standard deviation of 20,13 (range from 108 to 192).

Moderate sense of coherence ranges from 134 to 156 (Nanin, 2001). Thus, the sense of coherence scores obtained in this study are, on the whole, moderate.

When the results of this study are inserted into the Normative Data from Published Studies using the SOC-29 (see Table 5.3), the sense of coherence of South African marine officers is, in terms of the mean score obtained, well within the top half of the 21 results contained within the normative data table (8th place).

Sense of coherence is assumed to engender, sustain and enhance health and strength at endpoints such as work (Strümpfer et al, 1998). Thus, from the results set out above, one can assume that South African marine officers have a moderate sense of coherence which may assist them in maintaining physical and mental health. Empirical research has clearly demonstrated that there is a strong correlation between sense of coherence and general well-being (Novak, 2001).

5.2.2 Emotional intelligence

Averaging scores across the five subscales derives the total EQ score. Each subscale score is transformed to a standard score (Barling, Slater & Kelloway, 2000). The total EQ score is standardized to a mean of 100 with a standard deviation of 15 (Sivanathan & Fekken, 2002). The mean, the standard deviation and the range for emotional intelligence, as presented in table 5.4, are comparable to sample means reported in the literature.

Once again, the EQi Scores for the South African marine officers sample are not statistically more significant than those reported in the literature. However, this moderate emotional intelligence ability may be assisting them in maintaining physical and mental health in conjunction with the moderate sense of coherence. Certainly, emotional intelligence has gained much popularity as an underlying attribute of health (Palmer et al, 2001). Goleman (Palmer et al, 2001) argues that understanding emotions and using them intelligently is an imperative for mental health in today's "disintegration of civility and safety" (p. x).

5.2.3 Correlation between sense of coherence and emotional intelligence

The SOC-29 yields a total SOC score as well as a score for each of the three components of the construct, namely Comprehensibility, Manageability and Meaningfulness. For the purposes of investigating a relationship between the sense of coherence construct and the emotional intelligence construct, both the total SOC score and the subscales were used in the correlation coefficient calculation.

Although the EQi is made up of five composite scales (i.e. Intrapersonal; Interpersonal; Adaptability; Stress Management; and General Mood) as discussed earlier, both the total emotional intelligence score as well as the five subscale scores were used in the correlation computation.

The total SOC score for each participant was then correlated with the total EQ score for each participant using the Pearson product moment correlation coefficient. This yielded a correlation coefficient of 0,73, which would seem to indicate a significant correlation between the two constructs for this specific sample population.

Large effect correlations were also found between Total SOC and the five subscales of the BarOn EQ-i. These ranged from 0,54 (interpersonal) to 0,71 (General Mood). In addition, large effect correlations were also found between the subscales of the SOC and the subscales of the BarOn EQ-i, ranging from 0,55 (Stress Management) to 0,60 (Adaptability).

General Mood appeared to be correlated the strongest with the SOC total ($r = 0,71$), as well as the SOC subscales: Comprehensibility ($r = 0,57$); Manageability ($r = 0,60$); and Meaningfulness ($r = 0,69$).

Of interest is the relationship between General Mood and Meaningfulness. General Mood (as discussed previously) measures the individual's ability to be optimistic, cheerful and to create a positive atmosphere in the workplace. It encompasses the factors of Happiness and Optimism. Meaningfulness refers to the degree to which demands posed by the stimuli from the internal and external environments are seen as challenges, worthy of investment and engagement.

Regression analysis identified certain significant relationships between the constructs of sense of coherence and emotional intelligence. The analyses indicated that Intrapersonal, General Mood and Total EQ provided an explanation of significance for the variation in the total SOC score, Comprehensibility, Manageability and Meaningfulness scores. These two subscales as well as the total

EQ score appeared to be the most statistically significant in the relationship between sense of coherence and emotional intelligence.

5.3 CHAPTER SUMMARY

Within the sample of South African Marine Officers, there is a statistically significant relationship between the constructs of sense of coherence and emotional intelligence that enables the marine officers to work under adverse and sometimes life-threatening conditions whilst maintaining a state of physical, psychological and social well-being. Antonovsky himself expressed the expectation that there would be, by and large, positive correlations between sense of coherence and many facets of well-being (Strümpfer, 1995).

This finding is significant for the future exploration of the relationship between constructs that enable individuals to maintain their position on the health end of the health ease/dis-ease continuum and allows them to foster the capacity to live a socially and economically productive life.

CHAPTER 6: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter seeks to set out the conclusions, limitations and recommendations arising from this study. These are discussed under the headings below.

6.1 CONCLUSIONS

Workers today constantly face change – both internal and external factors contribute to this change. Employees need to learn how to be resilient in the face of this change – that is, how to design and implement positive adaptive behaviours matched to the immediate situation quickly, while enduring minimal psychological stress (Mallak, 1998).

The topics of stress and health are becoming increasingly interesting to organizations and their employees and will continue to attract considerable attention. High levels of perceived work stress have also been associated with poor mental health (Ho, 1995).

The conclusions of this study are discussed under the following headings: Sense of coherence; Emotional intelligence; Integration of the concepts at a theoretical level; and Empirical relationship between sense of coherence and emotional intelligence.

6.1.1 Sense of coherence

Antonovsky (1993) proposes a continuum health ease/dis-ease within his salutogenic model. Salutogenesis examines the creation of well-being by looking at successful strategies and health. In this respect, the salutogenic orientation is in stark contrast to the pathogenic orientation underpinning the medical model, which focuses on the particular disease entity.

Into this salutogenic model, Antonovsky introduced the operational scientific construct he called sense of coherence, which forms the core of this theoretical

model (Novak, 2001). The sense of coherence construct refers to a global orientation to an individual's inner and outer environments that is a central determinant of location and movement on the health ease/dis-ease continuum. The construct does not apply to a specific situation only but is a decisive element in the structure of an individual's personality. It is proposed that sense of coherence is a significant factor in facilitating the movement towards health (Antonovsky, 1996).

In the French tradition of medical history "health" is reflected as a resource or reservoir of reaction abilities that allow one to fall sick, but also to recover. This is close to what Antonovsky describes as "generalized resistance resources" (GRRs). GRRs are individual characteristics acquired by means of socialization and genetics, for example, favourable socio-economic status, knowledge, intelligence, ego-strength, social support, preventative health orientation, stable cultural background. The experience of having at an individual's disposal these resources makes up stable and repeating life experiences being used to balance between overload and underload and to enforce an individual's participation in shaping his own biography. These consistent and repeated life experiences build up an individual's sense of coherence. According to Antonovsky, sense of coherence is therefore a common shared as well as an individual philosophy to life (Novak, 2001).

Antonovsky differentiates three components or elements of sense of coherence, comprehensibility, manageability and meaningfulness, maintaining mutual interrelationships between them (Novak, 2001):

- a) **Meaningfulness** – the deep feeling that life makes sense emotionally and that life's demands and challenges are worthy of commitment. Within this, coping is deemed desirable.
- b) **Manageability** – the extent to which individuals feel they have the resources (GRRs) to meet the demands or feeling that they are aware of where to seek help from.

- c) **Comprehensibility** – the extent to which an individual finds or structures their world to be understandable, meaningful, orderly and consistent as opposed to chaotic, random and unpredictable.

It is important to bear in mind that people are continuously exposed to stress, albeit at different levels. Antonovsky's hypothesis is that the stronger a person's sense of coherence, the more likely will he/she be able to maintain his/her position on the health/disease continuum when exposed to these stressors (Strümpfer, 1990).

Meaningfulness or purpose in life has been related to both physical and psychological health, although the research is not extensive (MacArthur & MacArthur, 1997). Sense of coherence is comprised of three elements (as discussed earlier), one of these being the dimension of meaningfulness. Thus sense of coherence can be conceived as being the internal force that acts to keep the external stressors/forces in rein. The actual enactment of this internal force or sense of coherence is then what one can term "coping".

Antonovsky (Novak, 2001) proposes that the strength of sense of coherence, resulting from the actual dynamic interrelationships of the abovementioned three components has direct physiological consequences and thereby affects an individual's health status. Unfortunately, empirical research has not yet sufficiently verified this hypothetical conclusion of Antonovsky's theoretical salutogenic approach. Sense of coherence and somatic health status are weakly correlated and it has not yet been clearly established as to whether a weak sense of coherence causes symptoms of illness or whether these illness symptoms cause a weak sense of coherence. What empirical research has clearly demonstrated, however, is that there is a strong correlation between sense of coherence and general well-being (Novak, 2001).

Sense of coherence is able to predict health and/or well-being in a consistent manner. In almost every study, a strong sense of coherence represented resiliency, protection from breakdown, better health, more adaptive coping, better use of

available resources and less use of maladaptive coping such as drug or alcohol abuse.

6.1.2 Emotional intelligence

The construct of emotional intelligence is difficult to define (Bar-On, 1997). Mayer and Salovey's ability model of emotional intelligence is the most theoretically well clarified (Palmer et al, 2001). This framework conceptualises emotional intelligence as intelligence in the traditional sense consisting of a conceptually related set of mental abilities to do with emotions and the processing of emotional information. Mayer and Salovey (Palmer et al, 2001) have fully operationalized emotional intelligence according to a four branch hierarchical model from basic psychological processes to higher more psychological integrated processes. These four core abilities of the model are further operationalized to include four specific skills related to each (Palmer et al, 2001). Mayer, Salovey and Caruso's model draws upon a psychometric tradition that an intelligence must meet three criteria in order to be defined as such. The proposed intelligence must be conceptual, correlational and developmental. Mayer has demonstrated that emotional intelligence meets these criteria (Goleman, 2001).

Arguing from the theoretical framework of emotional intelligence as a theory of intelligence, Mayer et al (2001) make a distinction between emotional intelligence models that are *mixed* and those that are *pure* models or ability models, focusing exclusively on cognitive aptitudes. Mixed models, they contend, contain a concoction of abilities, behaviours and general disposition and conflate personality attributes, such as optimism and persistence, with mental ability. Based on their reading of Goleman's 1995 book, Mayer, Salovey and Caruso maintain that Goleman's emotional intelligence model is mixed (Goleman, 2001).

By comparison, Goleman defines emotional intelligence more broadly, also including such competencies as optimism, conscientiousness, motivation, empathy and social competence. According to Mayer, the broader traits that Goleman relates to emotional intelligence are considered personality traits by other theorists.

Responding to such challenges, Goleman states that cognitive skill allows an individual to gain entry to a company but that emotional skill allows the individual to succeed after he/she has been employed (Murray, 1998). Emotional intelligence is defined, then, as the composite set of capabilities that enable an individual to manage him/herself and others (Boyatzis, 1999). Boyatzis (1999) argues that it is more accurate to say that the frequency with which a person demonstrates or uses the constituent capabilities or competencies inherent in emotional intelligence determines the ways in which he/she deals with themselves, their life, work and others. He contends that although the specific labels and conceptualisations of these competencies may vary, they are a set of competencies addressing

- self-awareness – including emotional self-awareness, accurate self-assessment and self-confidence
- self-management – including achievement orientation, adaptability, initiative, trustworthiness, conscientiousness and self-control
- social awareness – including empathy, service orientation and organizational awareness
- social skills – including leadership, influence, communication, developing others, change catalyst, conflict management, building bonds, teamwork and collaboration

Emotional intelligence, at the most general level, refers to the abilities to recognize and regulate emotions in oneself and in others. This definition suggests four major emotional intelligence domains that Goleman claims are shared by all the main variations of emotional intelligence theory (Goleman, 2001; Gardner & Stough, 2002):

- self-awareness – the ability to understand feelings and accurate self-assessment
- self-management – the ability to manage internal states, impulses and resources
- social awareness – the ability to read people and groups accurately
- relationship management – the ability to induce desirable responses in others

Bar-On (1997) has claimed that, based on the difficulties encountered in defining intelligence on the one hand, and the remarkable amount of intelligence testing on the other hand, it is probably easier to measure intelligence than to define. Given the proposition that it is a combination of IQ and emotional intelligence that determines "life success", a question arises as to whether or not it is feasible to measure emotional intelligence. In addressing this issue, the literature tends to polarize. There appears to be a dominant view that the fairly complex and diverse nature of emotional intelligence mitigates against its effective measurement. While the lack of a robust and researched test for assessing emotional intelligence is widely acknowledged, there is a continuing search for such a measure. The complex nature of emotional intelligence and its assessment may, indeed, not be appropriate for measurement by means of a pencil-and-paper test (Dulewicz & Higgs, 2000).

There is now a considerable body of research suggesting that a person's ability to perceive, identify and manage emotions provides the basis for the kinds of social and emotional competencies that are important for success in almost any job. Furthermore, as the pace of change increases and the world of work makes ever greater demands on an individual's cognitive, emotional and physical resources, this particular set of abilities will become increasingly important (Cherniss, 2000).

A number of research studies have followed children, adolescents and adults who have higher emotional intelligence and found that they are more socially competent, personally effective, able to handle stress better, more self-reliant and trustworthy and perform better academically (Cacioppe, 1997).

6.1.3 Integration of the concepts at a theoretical level

The two constructs were linked theoretically by a review of relevant literature, which indicates that the constructs share similar relationships with other constructs. Both sense of coherence and emotional intelligence have been shown to have practically

significant relationships with mental health, burnout, job satisfaction and job performance. In reviewing the components of each construct, areas of theoretical overlap were also identified. This would appear to indicate that, at a theoretical level, there is a positive relationship between the two constructs. This relationship was then tested at an empirical level and this is discussed below.

6.1.4 Empirical relationship between sense of coherence and emotional intelligence

The researcher found a statistically significant positive relationship between the constructs of sense of coherence and emotional intelligence, as measured by the SOC-29 and the BarOn EQ-i within the sample population of South African marine officers ($r = 0,73$). This finding would seem to indicate that further research with respect to this relationship is needed. Large effect correlations were also found between the subscales of the SOC and the subscales of the BarOn EQ-i.

Regression analysis indicated a strong relationship between the General Mood and Intrapersonal subscales of the BarOn EQ-i with Total SOC score as well as the three subscales of the SOC-29. Total EQ was also strongly related to Total SOC and its three subscales.

However, it was noted that neither the Total SOC score nor the EQ-i Total score means were exceptionally high. It must be borne in mind that other factors – such as social support – which may well contribute to the physical and mental health of South African marine officers, were not identified or controlled for. It will be that other contaminants to this study assist in enabling these officers to work under the conditions that they do with no disadvantage to their physical and mental health. Examples of aspects that may need further exploration are social support and marital satisfaction.

6.2 LIMITATIONS

The findings and conclusions of this study may be limited by the following factors:

1. The researcher could not find any literature in which the constructs of sense of coherence and emotional intelligence had been explored simultaneously or where a relationship between the constructs had been investigated.
2. There has been very little published use of either instrument – SOC-29 and BarOn EQ-i in the South African literature – and the researcher could only find studies within this context that had utilized the SOC-29.
3. The sampling method selected by the researcher, selected because of the nature of the industry, was not random. Convenience sampling was employed to facilitate the return of the necessary data and participants ultimately self-selected themselves as participation was voluntary (Howell, 1989). This may well have contaminated the results of the study.
4. The sample is quite homogenous with very little variation from the white, male marine officer. While this will certainly prevent the extrapolation of the results to any general population, the demographics of this sample are fairly representative of the current population of South African marine officers.
5. The researcher is relatively inexperienced and this may certainly have led to contamination of the results of the study.
6. Sample size was only just adequate for the researcher to calculate the Pearson Product-Moment Correlation Coefficient.

7. No independent measure of physical or mental health was included in the study. An assumption was made by the researcher that South African marine officers had developed an arsenal of coping methods or dispositions that they utilized to maintain physical and mental health in a very taxing work environment.

6.3 RECOMMENDATIONS

Based on the conclusions of this study and, taking into account the limitations presented in 6.2 above, the researcher has the following recommendations to make:

1. More research using the sense of coherence construct is needed. More research should be added to the growing literature relating this relatively new construct to general well-being extending beyond physical health (Levert, 2000). Studies need to be undertaken that look at the relationship between sense of coherence and other constructs that may contribute to both physical and mental well-being, such as emotional intelligence.
2. A similar study should be undertaken in a different work environment to see if the results of this study could be replicated.
3. A larger sample population should be utilized to generate statistically more significant results.
4. More research using the sense of coherence and the emotional intelligence construct need to be undertaken within the South African context. While the researcher could find a limited number of published studies that made use of the SOC-29 in the South African scenario, no published studies that utilized the BarOn EQ-i within the South African context could be found.

5. Another measure of emotional intelligence should also be included in future research into the correlation between sense of coherence and emotional intelligence.
6. Other aspects that may contribute to the physical and mental health of South African marine officers were not controlled for nor were they considered in this study. It may be necessary in future research to identify and isolate or control these factors.

6.4 CHAPTER SUMMARY

In this chapter the conclusions reached by the researcher were presented under the following headings: Sense of coherence; Emotional intelligence; Integration of the concepts at a theoretical level; and Empirical relationship between sense of coherence and emotional intelligence. Also presented in this chapter are the limitations of the study as well as the recommendations of the researcher, stemming from the conclusions and limitations of the present study.

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