

**THE RELATIONSHIP BETWEEN  
SENSE OF COHERENCE,  
LEARNED RESOURCEFULNESS AND  
PERSONALITY TYPE  
AMONG TECHNICAL PERSONNEL**

**FRANÇOIS STEPHANUS DU TOIT**

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LEARNED RESOURCEFULNESS AND PERSONALITY TYPE  
AMONG TECHNICAL PERSONNEL

by

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## SUMMARY

This research study determined the relationship between personality, as measured by the Myers and Briggs Type Indicator (MBTI) and sense of coherence and learned resourcefulness. The study was conducted among one hundred technical workers within the context of organizational transformation and the ability to cope with resulting stress. Data was collected by means of the Myers and Briggs Type Indicator (MBTI), the Orientation to Life Questionnaire (OLQ) and the Self-control Schedule (SCS). The research found that sense of coherence can be predicted at a 5% significance level, while learned resourcefulness cannot be predicted. Extraverts, sensors, thinkers and judges seem to cope better with stress-provoking demands. The respective personality types probably make use of different coping mechanisms under the same circumstances. Personality type seems to predict sense of coherence, but factors other than personality type could have an influence.

## KEY TERMS

Personality, preference, extraversion, introversion, sensing, intuition, thinking, feeling, judging, salutogenesis, sense of coherence, learned resourcefulness, coping and stress.



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## **OPSOMMING**

Hierdie navorsingstudie bepaal die verwantskap is tussen persoonlikheid, soos gemeet deur die Myers en Briggs persoonlikheidstipe Indikator (MBTI) en sin vir koherensie en aangeleerde vindingrykheid. Die studie is geloods onder eenhonderd tegniese werkers binne die konteks van organisasietransformasie en die vermoë om gepaardgaande angs te hanteer. Data is ingesamel deur middel van die Myers en Briggs Persoonlikheidstipe Indikator (MBTI), die Lewensorientasievraelys (OLQ) en die Selfbeheerskedule (SCS). Die navorsing bevind dat sin vir koherensie voorspel kan word op 'n 5% betekenisvolle vlak, terwyl aangeleerde vindingrykheid nie voorspel kan word nie. Die ekstrovert, sensoriese, denker en beoordeelaar hanteer spanningswekkende eise blykbaar beter. Onderskeie persoonlikheidstipes maak klaarblyklik gebruik van verskillende hanteringsmeganismes onder dieselfde omstandighede.

Persoonlikheidstipe kan dus sin vir koherensie voorspel, hoewel ander faktore as persoonlikheid 'n invloed kan hê.

## **SLEUTELWOORDE**

Persoonlikheid, voorkeur, ekstroversie, introversie, sintuiglik, intuïtief, denkend, gevoelvol, beoordelend, salutogenese, sin vir koherensie, aangeleerde vindingrykheid, hantering van spanning.

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# CHAPTER 1

## INTRODUCTION TO THE RESEARCH

This dissertation is about the relationship between salutogenic make-up and personality. This chapter discusses the background to and motivation for the research. The problem statement, aims of research, the research model, paradigm perspective, research design and research methods are addressed. There after, a chapter division will be given.

### 1.1 BACKGROUND TO THE RESEARCH

Not only in stable, but also during times of turbulent change do some employees outperform others, cope better with challenges and survive easier amidst stress-provoking circumstances (Antonovsky, 1979).

Psychology has changed its focus away from negative, abnormal behaviour. This has specific value in industrial psychology as an applied psychology-in-the-workplace that focus on optimisation of work behaviour (Viviers, 1996). The traditional, reactive pathogenic paradigm, focussing on remedies to cure illness, is replaced by Salutogenesis, describing optimal day-to-day coping (Viviers, 1998). Salutogenesis is the study of the origins of health - originating from "salus" (Latin, meaning health) and "genesis", (Greek, meaning origin) (Antonovsky, 1979). Salutogenesis is studied to determine why some individuals succeed in remaining in good health in spite of having to cope with ever-present stressors. The presence of salutogenic constructs signifies a person's ability to cope with change - not only in the most effective way, but also in simultaneously minimising stress (Antonovsky, 1979).

The salutogenic constructs that will be discussed in this research are sense of coherence (SOC) and learned resourcefulness (LR). Sense of coherence is a

generalised, global orientation to the world. It expresses the extent to which a person experiences a sense of self confidence that stimuli are comprehensible, meaningful and can be coped with (Antonovsky, 1979). Learned resourcefulness refers to a set of beliefs, behaviours and skills, applied in regulating interfering internal responses, to smoothly execute ongoing target behaviour (Rosenbaum, 1988).

Vulnerability to stress may be a function of personal or social characteristics, individual differences and environmental effects (Matteson & Ivancevich, 1982). Individual needs, values and personality play a role in the outset of physical, psychological and organisational problems (Aldwin, 1994). Personality characteristics primarily determine how people cope with stress. Behaviours, feelings and cognitions evoked by a stressful situation are determined by the individual's personality structure. People can become characterised by their predominant use of a particular mechanism (Matteson & Ivancevich, 1982). Personality styles characterise the everyday manner in which people approach the events of their lives. These typical, preferred ways of coping, contribute to the way individuals deal with stressors (Aldwin, 1994).

Personality refers both to a person's public and verifiable social reputation and to his or her private, inferred inner nature. Structures, dynamics, processes and propensities inside a person explain why someone behaves in a characteristic way. Personality traits are psychological features existing inside a person, that explain the recurring regularities, tendencies or trends in a person's behaviour (Dunnette & Hough, 1991; Jung, 1949).

Individual orientation to life can be understood in terms of psychological type. Psychological type represents a personality pattern of habitual and conscious preference for the specific way in which one interacts with the external world, how information is processed and how decisions are made (Jung, 1949). These basic aspects of Jung's theory have been incorporated in the Myers-Briggs Type Indicator



(MBTI) (Muchinsky, Kriek & Schreuder; 1998, Van Rooyen, De Beer & Proctor, 1999).

The impact of personality dimensions in co-determining stress and stress resistance, differ according to perception of the situation as stress-inducing, the individual him- or herself and how specific the personality trait is. The subjective influence of environmental appraisal, results in different circumstantial performance reactions by different people. The ability to cope with normal daily challenges varies in accordance with difference in personality (Janisse, 1988; Jung, 1949).

## **1.2 PROBLEM STATEMENT**

The result of changes in international politics and economic crises early during the 90's, touched every aspect of life (Roush & Atwater, 1992). After the African National Congress (ANC) won national elections in April 1994, South Africa saw many a change as a result of transformation (Jordan, 1997). Concurrent with international trends, Government allocated fewer resources to the military, leaving a greater demand for return from those resources (Roush & Atwater, 1992). Sanctions were lifted, and South African participation in the Commonwealth and international competition became realities. African military peace-keeping services on international level was called for by the United Nations. In spite of international technological advances, strict budgetary constraints and statutory measures were enforced locally. If this was not enough, seven forces were amalgamated into the South African National Defence Force (SANDF). This resulted in an overstaffed post structure.

A business-like approach to military command and management was adopted. Strict budgetary control and less resources, process re-engineering and down-sized structures formed part of the strategic process. Base closures, and –mergers were part of this process. As personnel costs consume a significant share of the military budget, personnel matters received increased attention (Roush & Atwater, 1992).

The situation called for personnel reductions, initially addressed through Voluntary severance packages (VSP) and later, employer initiated packages (EIP).

Adding to external environmental threats, political change and the suffering economy, the individual soldier now had to deal with organisational change. The individual career soldier - used to serving in a secure, controlled and regulated work environment now had to consider the respective alternatives of EIP, migration an/or transfer into other posts (including geographical moves), or resignation (Cloete, 2001). To worsen the situation further, the process of identification and selection of individuals earmarked for severance package is not necessarily clear to all. The stress-inducing effect of a lack of job security in a traditionally stable career environment and delays in the process, lead to negativity amongst some, causing an outflow of essential expertise (Cloete, 2001), with no exception to the technical support function. Technical personnel render an essential service to the highly technical military force of the day, as it directly influences the operational utilization capability. These employees' services have to be retained to enable the National Defense Force to execute its core business - the safeguarding of South Africa and its people.

### **1.2.1 Motivation for the Research**

This research study flows from the need to determine if successful coping with the current work situation is related to personality factors, as described by the Myers and Briggs Type Indicator. There are no such research results available in South Africa at present. The study proposes to determine if there is a significant relationship between personality type, as conceptualised by the Jungian-based Myers and Briggs Type Indicator (MBTI) and inherent salutogenic ability on the one hand - to cope with stress-provoking life challenges, as described by sense of coherence (SOC) and learned resourcefulness (LR), on the other hand. It further proposes to determine if the MBTI could be used as a predictor of sense of coherence and learned resourcefulness.

The results of this study could be of dual purpose. In the first instance, it could be put to use in attracting and selecting personnel who possess the desired salutogenic personality make-up. In the second instance it can benefit employed individuals, by creating an awareness of the preferred coping style of certain personality types and the associated behaviour related to sense of coherence and learned resourcefulness. It could enable an organisation to use the MBTI to predict the extent of a need for support to cope with stress and to render the correct type of support to a specific personality type. Employees could then develop a focus on specific critical areas for optimal performance, in spite of stress-provoking circumstances.

### **1.2.2 Sub-Problems**

Given this background, the following research questions emerge:

- How does the literature conceptualise personality type according to the four Jungian-based, Myers and Briggs Type Indicator continuums of extraversion/introversion, sensing/intuition, thinking/feeling and judging/perceiving?
- How does the literature conceptualise sense of coherence and learned resourcefulness?
- What is the literature-based theoretical relationship between personality type, as conceptualised by Myers and Briggs Type Indicator continuums on the one hand and the salutogenic construct of sense of coherence and learned resourcefulness, on the other hand?
- What are the actual personality types as conceptualised by Myers and Briggs Type Indicator continuums and the sense of coherence and learned

resourcefulness of technical personnel in the South African Department of Defence.

- What is the actual relationship between personality type as conceptualised by Myers and Briggs Type Indicator continuums on the one hand, and sense of coherence and learned resourcefulness, on the other hand?
- Can personality type, as conceptualised by Myers and Briggs Type Indicator continuums, be used as a predictor of sense of coherence and learned resourcefulness?
- What recommendations can be formulated in terms of the relationship between personality type, on the one hand and sense of coherence and learned resourcefulness, on the other hand, for the organisation and future research purposes?

### **1.3 RESEARCH AIM**

The aim of this research involves general and specific aims.

#### **1.3.1 General Aim**

The objective of this research is to determine the relationship between sense of coherence (Antonovsky, 1979) and learned resourcefulness (Rosenbaum, 1988) as salutogenic constructs on the one hand, and personality according to the Myers-Briggs Type Indicator, on the other hand.

The general aim of this research is to determine the personality types, sense of coherence and learned resourcefulness of the respondent sample. It is recommended that, to achieve this a literature study on these constructs must be conducted, and volunteers should be requested to indicate their preference in

accordance with respective instruments. After this, results can be calculated and compared with the contribution of the literature. In so doing, the knowledge and understanding of this relationship will be enhanced.

### **1.3.2 Specific Aims**

The specific aims of the literature study are:

- To determine from the literature how personality type is conceptualised according to the four Jungian-based, Myers and Briggs Type Indicator continuums of extraversion/introversion, sensing/intuition, thinking/feeling and judging/perceiving. This will be reached by reporting on findings of previous research and supporting theory.
- To determine how the literature conceptualises sense of coherence and learned resourcefulness. This will also be reached by reporting on findings of previous research and supporting theory.
- To determine the literature-based theoretical relationship between personality type as conceptualised by the Myers and Briggs Type Indicator on the one hand and sense of coherence and Learned Resourcefulness on the other hand. This will be achieved by lifting out those aspects that apply, to confirm the existence of such a relationship.

The specific aims of the empirical study are:

- To determine the actual personality types as conceptualised by Myers and Briggs Type Indicator continuums, sense of coherence and learned resourcefulness amongst a sample of technical personnel in the South African Department of Defence. This will be achieved by obtaining feedback in the form of results of respective instruments, from respondents.

- To determine the actual relationship between personality type as conceptualised by the Myers and Briggs Type Indicator on the one hand and sense of coherence and learned resourcefulness, on the other hand. This objective will be addressed by applying statistical techniques.
- To determine if personality type, as conceptualised by the Myers and Briggs Type Indicator, can be used as a predictor of sense of coherence and learned resourcefulness. This will be achieved in conjunction with the previous objective, by making use of statistical techniques that determine the strength of the relationship between these concepts.
- To formulate recommendations in terms of the relationship between personality type on the one hand and sense of coherence and learned resourcefulness, on the other hand, for the organisation and future research purposes. This objective will be addressed by indicating limitations, conclusions and recommendations, based on the findings of this research.

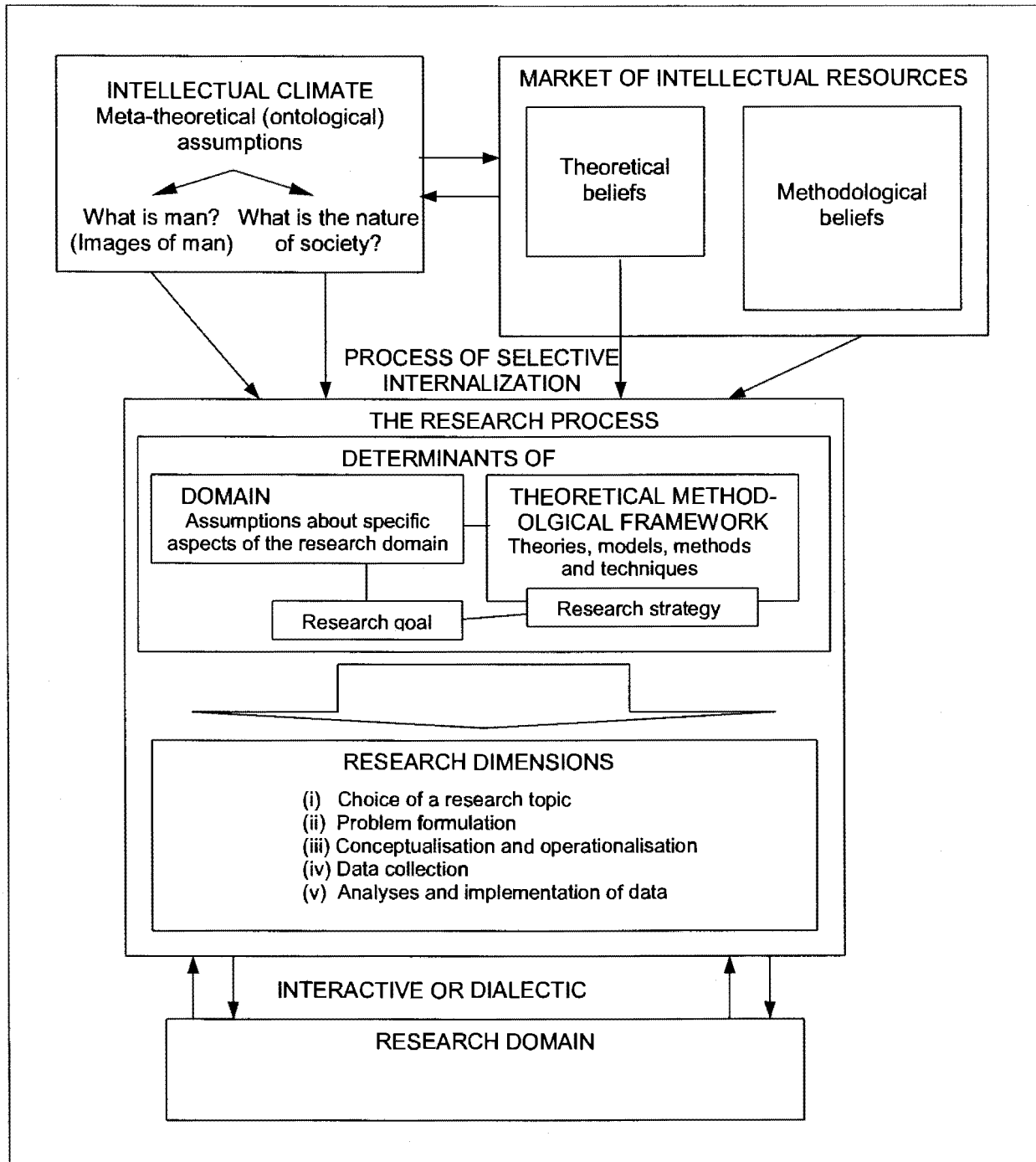
### **1.3.3 Research Hypothesis**

The research hypothesis for this research is that:

There is a significant relationship between personality type on the one hand, and sense of coherence and learned resourcefulness on the other hand.

## **1.4 RESEARCH MODEL**

- The framework for this research is based on the research model of Mouton and Marais (1992), indicated in figure 1. In their model, the social, ontological, teleological, epistemological and methodological dimensions of social science are



**Figure 1: Underlying Research Model (Mouton & Marais, 1992)**

incorporated and systemised within the framework of the research process. Three subsystems interact with one another and the research domain. The three subsystems are the intellectual climate, the market of intellectual resources and the research process. The research domain in this research is personality type

according to the MBTI and salutogenic constructs of sense of coherence and learned resourcefulness.

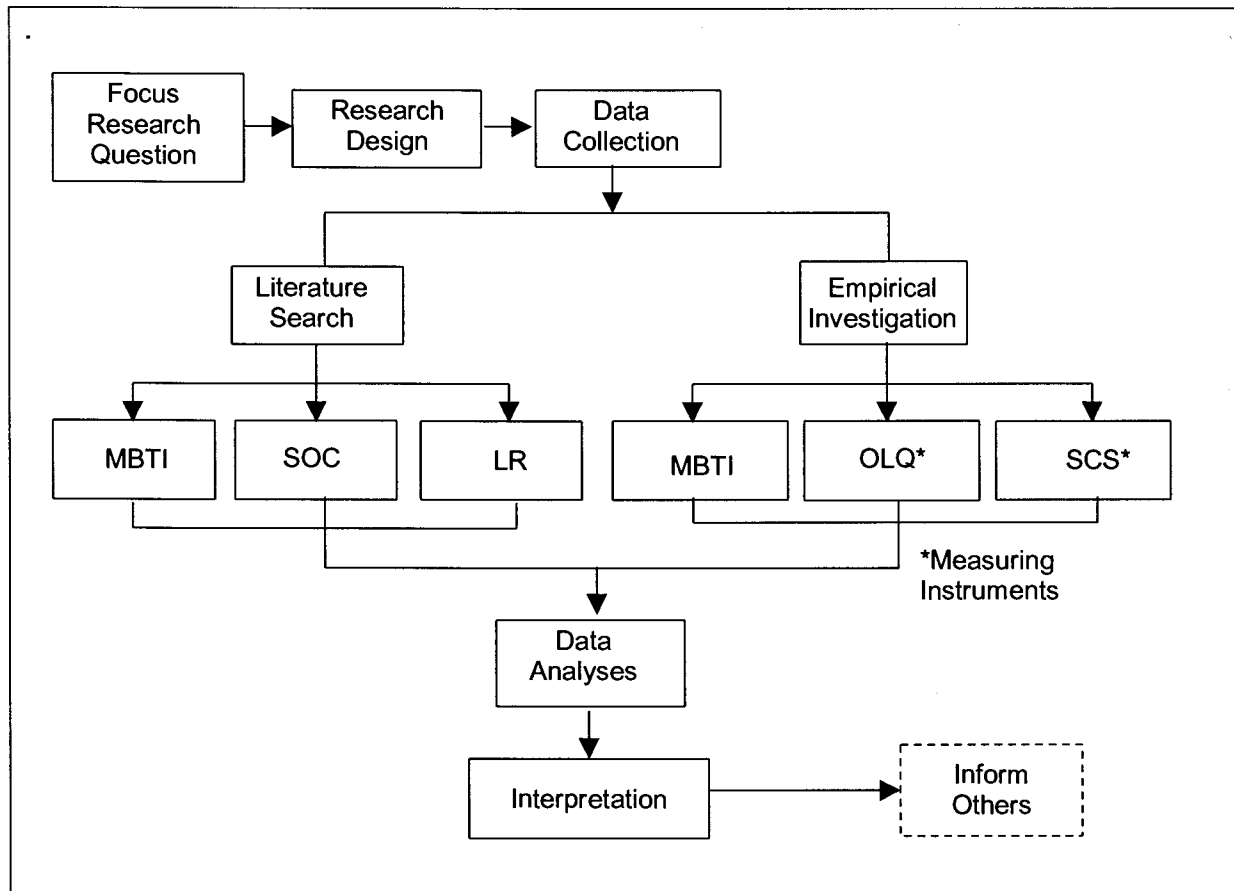
### 1.4.1 Dimensions

The five research dimensions of the research process, allow for discussion of the research from various perspectives (Mouton & Marais, 1992).

- The sociological dimension conforms to the requirements of the scientific sociological research ethic, as a collaborative human activity.
- The ontological dimension of social research addresses aspects of reality where there is an empirical or non-empirical object.
- The teleological dimension describes an intentional, goal-directed and -driven activity, directed at specific human objectives emphasising the comprehension and obtaining of insight into phenomena.
- The epistemological dimension is the quest for truth to result in a valid, sound and reliable comprehension of reality.
- The methodological dimension offers a unique, systematic method of doing objective research to achieve the respective ideals through critical and balanced performance. The applicable methodological dimension is quantitative research.

From figure 2 it can be seen that this research process will start with a research question, as the research topic has already been clarified as "the relationship between personality on the one hand and sense of coherence, and learned resourcefulness on the other hand. In this research, the research question asks if there is a relationship between these constructs.





**Figure 2: Model of Steps Followed in this Research Process (Neuman, 1997).**

The research question is focused and narrowed down by the practical details of how the research will be conducted - embodied in the research design. This is followed by a review of previous research and literature on the respective topics of personality, sense of coherence and learned resourcefulness. Data will also be collected through an empirical investigation and analysed to determine if any patterns emerge.

These patterns will assist in interpreting and giving meaning to the data. Finally, a report will be written, describing what was discovered (Neuman, 1997).

## 1.5 PARADIGM PERSPECTIVE OF THE RESEARCH

In this section, the intellectual climate, the market of intellectual resources and the research process will be addressed. This section will also outline the relevant paradigms, meta-theoretical statements and theoretical models utilised in this research.

### 1.5.1 The Intellectual Climate

As meta-theoretical assumption of research, intellectual climate refers to its non-epistemic value systems. It has a philosophic origin, characterised by postulates, signifying assumptions rather than hypotheses (Mouton & Marais, 1992). Assumptions for this research are formulated for industrial psychology and man.

#### 1.5.1.1 *Disciplinary Perspective*

The following discipline and sub-disciplines are applicable in this research: Industrial psychology, organisation psychology, psychometrics and personology.

- *Industrial Psychology*

Industrial Psychology is defined as the specific study of human behaviour and psychological conditions in work-related aspects of life and application of knowledge towards minimisation of problems in this context (McCormick & Ilgen, 1985).

- *Organisation Psychology*

Organisation Psychology is the study of organisations and the elements and systems it consists of, as well as factors that influence efficiency, with specific reference to the interaction between the individual and the organisation (Plug, Meyer, Louw & Gouws, 1988). It is that part of psychology that concerns itself with attitudes and beliefs of people in organisational context. Its focus is on role-related behaviour, group pressure, commitment and patterns of communication (Muchinsky, Kriek & Schreuder, 1998).

- *Psychometrics*

Psychometrics is the study of all aspects of psychological measurement, including the drawing up and standardisation of psychological tests (Plug et al, 1988). It is a process of allocating digits, symbols, numbers or names and logical reasoning about deductions and conclusions after psychological phenomena were observed according to predetermined rules and scientific customs (Smit, 1986).

- *Personology*

Personology is that section of psychology that is focused on the study of the characteristics of the individual and differences between persons. It enables one to indicate how well we know someone (Meyer, Moore & Viljoen, 2000).

#### 1.5.1.2 *Meta-theoretical Assumptions*

Meta-theoretical assumptions represent the category of assumptions underlying the theories, models and paradigms of this research. Meta-theoretical values and beliefs have become part of the intellectual climate of a specific discipline in the social

sciences. This research is directed by a specific paradigm perspective, which includes specific statements and the market for intellectual resources (Mouton & Marais, 1992; Strümpfer, 1990). Discussed below are the applicable paradigms to this research, being analytical psychology and salutogenesis:

- *Analytical Psychology*

Any psychological system that endeavours to reduce phenomena to the compositive parts (Plug, Meyer, Louw & Gouws, 1988). Developed by Jung, it builds on basic assumptions of Freud's theory, but penetrates deeper into the subconscious (Meyer, Moore & Viljoen, 1997). Jung (1949) indicates a close relationship between psychopathology and normality, so that neurotic behaviour should be seen as pathological overemphasis of the normal. The Myers and Briggs Type Indicator, commonly known as the MBTI (Myers, 1998) used in this research is based on the theory of Jung, regarding personality type.

- *Salutogenesis*

The paradigm of salutogenesis (Antonovsky, 1979) emphasises the origins of health in contrast to the pathogenic paradigm. Constructs involved deal with the way in which people manage stress and stay well in spite of the omnipresence of stressors. Antonovsky's core assumption is that of heterostasis, disorder and pressure toward entropy (Strümpfer, 1990). Assumptions of the Salutogenic paradigm are:

- That the emphasis is on the origins of health and well being.
- The maintenance and enhancement of well-being is of primary concern.
- The assumption of stressors being inherently bad, is rejected in favour of the possibility that salutary consequences may be the result of stressors.

Stress management and staying well is focused on (Antonovsky, 1979). The sense of coherence and learned resourcefulness, studied in this research, are constructs within the salutogenic paradigm.

### **1.5.2 The Market of Intellectual Resources**

The market of intellectual resources refers to the collection of convictions that have bearing on the epistemic status of scientific statements (knowledge-claims). Theoretical and methodological convictions about the nature and structure of phenomena on the one hand and methodological beliefs about the nature and structure of the research process on the other hand are two major types of epistemic convictions distinguished (Mouton & Marais, 1992). This research presents a central hypothesis, conceptual descriptions about stress, coping, salutogenesis and personality, models and theories and specific methodological convictions.

#### **1.5.2.1 *Theoretical Beliefs***

As testable statements about the nature and structure of social phenomena, theoretical beliefs are the perspective ("what") and interpretative ("why") aspects of human behaviour. This includes all statements forming part of the hypotheses, typologies, models or theories (Mouton & Marais, 1992:22).

- *Conceptual Descriptions of key terms used in this research:*

- *Personality*

Personality is the unique pattern of behaviour that an individual portrays in social circumstances, motivated by dynamic energy systems with interacting processes (Myers, 1998).

- *Preference*

Preference is the choice of one above another, based on the natural and competent opposed to aspects requiring effort and leading one to feel awkward. Preferred methods support being ones general best, feeling most competent, natural and energetic. A preference is indicative of the natural difference between people in their focus of attention and energy, the way information is taken in, the way in which decisions are made and their orientation towards the external world (Myers, 1998).

- *Salutogenesis*

Salutogenesis is the study of the origins of health (Antonovsky, 1979).

- *Coping*

The facilitation of successfully dealing with inherent stressors of human existence (Matteson & Ivancevich, 1982).

- *Stress*

Stress is the totality of bodily and psychic reaction to detrimental and or unenjoyable stimuli (Plug et al, 1988). It is adaptive physiological arousal, due to a real or perceived threat, which mobilises a fight or flight reaction or even illness (Matteson & Ivancevich; 1982).

- Learned Resourcefulness

Learned resourcefulness is a set of beliefs, behaviours and skills, applied in regulating interfering internal responses, to smoothly execute ongoing target behaviour (Rosenbaum, 1988).

- *Sense of Coherence*

Sense of coherence is a generalised, global orientation to the world. It expresses the extent to which a person experiences a sense of self-confidence that stimuli are comprehensible, meaningful and can be coped with (Antonovsky, 1979).

- Theory applicable to this research:

- The Personality theory of Jung

According to Jung's (1949) personality theory, an individual orientation to life can be explained in terms of psychological type, representing a behaviour pattern. A type preference implies a person's habitual and conscious preference for one side rather than the other, on the continuums of extraversion/introversion, sensing/ intuition and thinking/feeling.

### 1.5.2.2 *Methodological Beliefs*

Paradigms and assumptions applicable in the data-analyses are the following:

- The Positivist Paradigm

The positivist paradigm is used in the empirical study . This approach is linked to the structural-functional, rational choice and exchange-theory frameworks. This study will make use of quantitative data, survey sampling and statistics. From the positivist perspective, social science is:

*an organised method for combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity (Neuman, 1997).*

The positivist paradigm assumes that scientists are involved in a quest for value-free knowledge of truthful, factual information, based on observable reality and general laws that withstands strict, logical reasoning over time. Social scientific knowledge is real, has order and stable basic patterns and is better than common sense (Neuman,1997).

## 1.6 RESEARCH DESIGN

The research design is planned and structured to result in a high validity of research findings. This research design incorporates a literature review and an empirical investigation to determine the relationship between personality, sense of coherence and learned resourcefulness (Gabriel, 2000; Mouton & Marais, 1992). A correlational design is used. Questionnaires are taken down simultaneously. The strength of the relationship between respective constructs is then determined (Bless & Kathuria, 1993).



## **1.6.1 Research Variables**

Research variables consist of dependent and independent variables.

### *1.6.1.1 Dependent Variables*

The salutogenic constructs of sense of coherence and learned resourcefulness will serve as dependent variables.

### *1.6.1.2 Independent Variable*

The independent variable will be personality as conceptualised by the Jungian-based MBTI.

### *1.6.1.3 Moderator Variables*

The following aspects could act as moderator variables: age, gender, qualification, previous transfers, military and combat experience, employment status and courses attended in stress management.

## **1.6.2 Type of Research**

This research study will follow a descriptive design approach.

## **1.6.3 The Unit of Analyses**

The unit of analyses will be the individual in the work environment.

## 1.6.4 Methods to Ensure Reliability and Validity

### 1.6.4.1 *Validity*

Validity has to be proven by addressing both the literature review and the empirical investigation.

- *Validity of the Literature Review*

Internal validity can be ensured by the selection of models and theories in a representative manner, coupled with a standardised way of presentation.

- *Validity of the Empirical Investigation*

Validity can be ensured through the responsible selection of measuring instruments and presenting these in the standardised way.

### 1.6.4.2 *Reliability*

- *Reliability of the Literature Review*

Consistency or stability of the literature review can be obtained through accurate reporting of a wide basis of literature on subject matter. The content must be based on the findings of the originators of the concepts involved.

- *Reliability of the Empirical Investigation*

The reliability of the empirical investigation is related to the reliability of measuring instruments utilised.

## **1.7 RESEARCH METHODOLOGY**

The research methodology followed will follow a phased process.

### **1.7.1 The Research Process**

Research will be conducted in two phases – a literature review and an empirical investigation (Moustakas, 1994):

- Phase I will be a literature review incorporating sense of coherence, learned resourcefulness, personality and an integration of the constructs.
- Phase II will present the empirical investigation in which interpretations of sense of coherence, learned resourcefulness and the Myers and Briggs Type Indicator will be made.

### **1.7.2 Phase One: Conceptualisation and Literature Review**

- Step 1:* Personality is defined and described according to the MBTI.
- Step 2:* Sense of Coherence is defined and described.
- Step 3:* Learned Resourcefulness is defined and described.
- Step 4:* Theoretical Integration of Personality, Sense of Coherence and Learned Resourcefulness.

### **1.7.3 Phase Two: Empirical Investigation**

- Step 1:* The Sample: A convenience sample of one hundred participants comprising military technical personnel in the government sector is selected to participate in the research. The sample size has to be large enough to enable statistical calculation of significant value.

*Step 2:* Measuring Instruments: The Myers and Briggs Personality Indicator, the Orientation to Life questionnaire (OLQ) and the Self-control Schedule (SCS) are discussed and motivated as a test battery, to assess personality and salutogenic factors, respectively.

The Myers and Briggs Type Indicator (MBTI) indicates personality type preference. The four continuums scales compare favourably with well-established and respected trait-based instruments (Hammer, 1993). It's internal consistency reliability is higher than 0,84. Its correlation of 0,76 for temporal stability confirms construct validity.

The Orientation to Life questionnaire (OLQ) is a twenty-nine-item self-report questionnaire that measures the construct of Sense of Coherence (SOC). A high reliability for the OLQ is reported through the Cronbach alpha measure of internal consistency, varying between 0,84 and 0,93 - related to ethnic, language and culture group (Fouché & Rothmann, 2001; Pretorius & Rothmann, 2001). Reliability of the OLQ instrument is high, based on its test-retest reliability that varies between 0,41 and 0,97 both locally (Pretorius & Rothmann, 2001) and abroad (Antonovsky, 1993).

The Self-control Schedule (SCS) is a thirty-six-item self-report questionnaire that measures Learned resourcefulness - a personality repertoire providing the basis for further learning (Rosenbaum, 1990). Cronbach alphas for test-retest reliability of 0,96 and internal consistency reliabilities ranging between 0,78 and 0,86 apply to this instrument, both locally and abroad (Edwards & Riordon, 1993; Fouché & Rothmann, 2001; Strümpfer, 1990).

- Step 3:* The Myers and Briggs Personality Indicator, the Sense of Coherence and the Learned Resourcefulness questionnaire is administered to the sample of respondents. Feedback is supplied to respondents.
- Step 4:* Psychometric data processing and analyses takes place by means of the SPSS program. Descriptive statistics (mean, standard deviation, minimum and maximum values), as well as correlation and regression. Frequency analyses and Cronbach's alphas of the measuring instruments will be determined, to statistically investigate the empirical relationship between the respective constructs. Results are interpreted and reported.
- Step 5:* Conclusions are reached on the findings of the research.
- Step 6:* Limitations of the research are indicated.
- Step 7:* Recommendations for future use of the findings are made.

## **1.8 CHAPTER DIVISION**

The dissertation is divided into six chapters. Chapters two and three deal with the literature study. Chapter two addresses the dependant variables - sense of coherence and learned resourcefulness. The concepts will be explained, followed by the respective supportive theories and models, dimensions involved and the effect of their use in the work place. Chapter three addresses personality type according to the MBTI, as independent variable. It addresses conceptualisation of type, the model, its dimensions and effect of the use of the instrument. The integration of these respective concepts, models, dimensions and their effect is also discussed. Chapter four deals with the empirical study with regards to the population and sample used, measuring instruments, gathering of data, the processing of data and concludes with the hypothesis. In chapter five, results are reported, interpreted and

summarised. Chapter six deals with conclusions, limitations and recommendations. The chapter division will be as follows:

Chapter 2: Salutogenic Constructs

Chapter 3: Personality Type

Chapter 4: Empirical Investigation

Chapter 5: Results and discussion

Chapter 6: Conclusions, limitations and recommendations.

## **1.9 CHAPTER SUMMARY**

This chapter discussed the background to and motivation for the research. The problem statement was discussed, from which flowed the aims of research. Presentation of the research model, paradigm perspective, research design, research method and chapter division followed. Chapter two will discuss the salutogenic constructs of sense of coherence and learned resourcefulness.

## **CHAPTER 2**

# **SENSE OF COHERENCE AND LEARNED RESOURCEFULNESS**

The objective of this chapter is to conceptualise the salutogenic constructs of sense of coherence and learned resourcefulness. The chapter will commence with general background information on salutogenesis. This will be followed by the respective definitions and theoretical background of sense of coherence and learned resourcefulness, as well as components and outcomes of the constructs. The chapter will conclude with the relevance of sense of coherence and learned resourcefulness to personality.

### **2.1 DEFINITION OF SALUTOGENESIS**

Salutogenesis is derived from the Latin word "salus" which means health, and the Greek word "genesis" which refers to origin. Salutogenesis is the study of the origins of health, ie the reasons why people survive and stay healthy in spite of omni-present stressors. Salutogenesis is defined as the focus on the origins of health, primarily concerned with the maintenance and enhancement of wellness (Antonovsky, 1979; Strümpfer, 1990).

### **2.2 THEORETICAL BACKGROUND TO SALUTOGENESIS**

Inevitable pressures toward entropy brought about the concept of salutogenesis. A dynamic condition of heterostatic disequilibrium and pressure towards heightened entropy is characteristic of the living organism. This implies exposure to chaos, entropic or negentropic processes and unavoidable final death. The focus of salutogenesis is on successful coping by studying resources which reduce this entropy (Antonovsky, 1979, 1996; Lustig, Rosenthal, Strauser & Haynes, 2000)

External circumstances should not influence a person's functioning, as the nature of a stressor is the influencing factor on the outcome of a reaction. It is this reaction to a stress-provoking situation that determines a person's condition of health. Salutogenesis investigates how living a healthy life - in spite of such stressors - could lead to a salutogenic outflow which could be used to a person's benefit (Antonovsky, 1979, 1987). Health is viewed as a state of optimal physical, mental and social well-being, and not as the absence of disease. An individual occupies a position on a health-illness continuum. Salutogenesis is concerned with this spectrum of health ease/disease and focuses on salutary rather than risk factors, by viewing the person as a whole, rather than the disease and the collaborator as separate entities (Antonovsky, 1996).

### 2.2.1 Salutogenesis and Pathogenesis

Salutogenesis is the opposite of pathogenesis, ie the study of ailments. The paradigm of salutogenesis emphasises the origins of health, which is in contrast with the pathogenic paradigm. Pathogenesis emphasises the origins of disease or ill health. According to the pathogenic paradigm the constant condition of normality could be disrupted by pathogens and stressors, leading to disease. This renders

**Table 2.1: Differences between Pathogenesis and Salutogenesis**

Assumption	Pathogenesis	Salutogenesis
1. Origin	Sickness and the abnormal.	Health and optimal functioning.
2. Aim	Reasons for ailments.	The origins of health.
3. Deviations	The exception to the rule.	Not exceptional - the actual norm.
4. Norm	Homeostasis.	Heterostasis.
5. Causality	Stressors lead to ailments.	Dynamic heterostatic disequilibrium.
6. Hypothesis	One is either healthy or ill.	A tendency towards health or sickness along a multidimensional continuum.
7. Approach	Resists multiple causes.	Holistic approach.
8. Focus of Studies	Ailments and their sources (subjective interpretation).	The maintenance of health.

Note. Adapted from Antonovsky (1979, 1987, 1996) and Strümpfer (1990).



homeostasis fundamental to pathogenesis. A core assumption of salutogenesis is that of heterostasis, disorder and pressure toward entropy (Antonovsky, 1979; Strümpfer, 1990). Table 2.1 contains a summarised comparison between pathogenesis and salutogenesis (Antonovsky, 1979, 1987 & 1996).

A comparison of the basic assumptions with regard to pathogenesis and salutogenesis clarifies the fundamental differences of approach to the same phenomenon. It is evident from Table 2.1 that life cannot be approached from a pathogenic point of view only (Antonovsky, 1979, 1987 & 1996). If pathogenesis explains health/disease-related phenomena only in part, then those aspects not catered for as pathogens have to be counterbalanced by the salutogenic approach. The table explains why salutogenesis is the appropriate approach to be adopted in this study, since it focuses on the system as a whole and not merely on the deviations from a supposed norm.

### **2.2.2 Generalised Resistance Resources**

The salutogenic concept leads to the conclusion that resources exist which reduce entropy and promote successful coping. These factors, namely generalised resistance resources (GRRs), determine the position a person occupies on the health "ease/disease" continuum. GRRs are characteristics which help one to cope with, avoid or combat the stressors of human existence, for instance to interpret the environmental stimuli one is bombarded with as information, rather than noise (like an emergency vehicle siren). GRRs provide individuals with life experiences that are characterised by consistency, a balance of stimuli and participation in determining outcomes. They foster experiences which help one to view the world as making sense cognitively, instrumentally and emotionally (Antonovsky, 1987).

The regular experiencing of the availability and use of GRRs facilitates coping with complex life stressors and moving towards the health side of the health/disease continuum. These generalised sources of resistance play a facilitative role through the repetitive experience of making sense of the constant bombardment with stressors. The avoidance of or overcoming of stressors reinforces the sense of coherence (SOC) and develops a stronger sense of coherence, which affects the

overall quality of a person's perception of stimuli. (Antonovsky, 1987, 1991; Strümpfer, 1990, 1995, 1997).

The interpretation of stimuli as comprehensible, meaningful and within one's coping ability, is ascribed to causes within an individual and not to fate or luck. This enforces a belief in one's own abilities, self-confidence, decision-taking and the implementation of action steps which lead to problem-solving and a higher expectation of success in tasks undertaken. Psychological adjustment is characterised by re-establishing positive self-worth, realising one's potential, pursuing and implementing social and vocational goals and successfully overcoming obstacles related to these goals. This successful adjustment can be conceptualised as life satisfaction (Livneh & Antonai, 1997; Lustig et al, 2000; Pretorius & Rothmann, 2001; Strümpfer, 1995).

### **2.2.3 Salutogenic Constructs**

Constructs involved in salutogenesis concern the way in which people manage stress and stay well in spite of the omnipresence of stressors (Antonovsky, 1996). Locus of control (Rotter, 1966), hardy personality (Kobasa, 1979), potency (Ben-Sira, 1985), stamina (Thomas, 1981), learned resourcefulness (Rosenbaum, 1988) and sense of coherence (Antonovsky, 1979) are all constructs of the Salutogenic paradigm. Many other constructs exist, such as resilience (Lifton, 1993), emotional intelligence (Goleman, 1995) and self-efficacy (Bandura, 1989). Strümpfer (1990) mentions some of the most important ones of which a few will be discussed briefly.

#### **2.2.3.1 *Locus of Control***

Fouché and Rothmann (2001) cite Rotter to indicate that two orientations are applicable to man, ie either an internal or an external locus of control. Internal control is based on the belief that the reinforcement of behaviour depends on one's own performance, competence and commitment. An external orientation is based on the belief that fate, luck and influential people are responsible for one's behaviour. Locus of control is often used in research relating to coping, health and welfare (Cilliers, Viviers & Marais, 1998; Fouché & Rothmann, 2001).

### 2.2.3.2 *Hardy Personality*

Hardiness is presented as a global personality construct, which moderates stress-health relationships. Hardiness is indicated to have a cushioning effect against stress. Hardiness describes the difference between personalities that stay healthy on the one hand, and those who fall ill on the other hand, under the same stressful circumstances. It consists of three components, namely commitment, control and challenge. This theory is based on the existential psychological approach (Cilliers, Viviers & Marais, 1998; Kobasa, 1979; Strümpfer, 1990).

### 2.2.3.3 *Potency*

Potency, originated by Ben-Sira (1985), refers to an enduring confidence in personal capacities and commitment to the social environment. This environment is characterised by a meaningful and predictable order, and a reliable and just distribution of rewards. High potency is indicative of a higher level of personal stability, so that sporadic failure and resource shortfalls have less influence on an individual's coping ability (Ben-Sira, 1985; Cilliers, Viviers & Marais, 1998; Strümpfer, 1990).

### 2.2.3.4 *Stamina*

Stamina refers to a person's physical and moral strength to resist or withstand disease, fatigue or hardship. People have different potentialities and susceptibilities, moulded by life experiences (Strümpfer, 1990). Stamina correlates closely with education, sound health, a perception of triumph over hard times and supportive social interaction with significant others (Strümpfer, 1990; Thomas, 1981).

### 2.2.3.5 *Sense of Coherence and Learned Resourcefulness*

Sense of coherence (Antonovsky, 1979) was the first construct to be identified with salutogenesis. Antonovsky initiated not only the salutogenic paradigm, but simultaneously introduced the sense of coherence construct. On account of this construct's historical position and the contribution it made in gaining a better

understanding of salutogenesis, it has been regarded as one of the more important constructs to consider. With this construct as the original point of departure for the study of salutogenesis, it was logical to include it in a study of the relationship between salutogenic factors and personality.

Learned resourcefulness was initiated by Rosenbaum (1988), who states that most individuals are constantly faced with demanding, ever-changing situations that challenge their competence and established behavioural repertoires (Rosenbaum, 1990). Survival and health promotion, under these circumstances, call for self-regulation and self-management behaviour. The methods and techniques which promote health-oriented behaviour and an ability to cope with illness, are based on learned resourcefulness. The assumption made in respect of the learned resourcefulness construct, namely that the ability and willingness to learn to be more resourceful are related to personality, implies that this construct is applicable to this research.

The two respective constructs focused on in this research will now be discussed in more detail.

## **2.3 SENSE OF COHERENCE**

Sense of coherence is referred to as a psychological personality trait, which implies certain responses to different types of stress situations. The view of the world as coherent and predictable is derived from the extent to which a person experiences evenness of stimuli intensity, a firm heading towards personal objectives and underload or overload of stress (Antonovsky & Sagy, 1986; Oosthuizen, 1994).

### **2.3.1 Definition of Sense of Coherence**

Sense of coherence (Antonovsky, 1979, 1986, 1987, 1990, 1996) is defined as a generalised, global orientation to the world. It expresses the extent to which a person experiences a pervasive, enduring sense of self-confidence that the external stimuli to which he/she is exposed are comprehensible, meaningful and can be coped with.

This central construct of salutogenesis is portrayed in the dynamic feeling of trust that:

- Stimuli from the internal and external environment are structured, predictable and explainable.
- Resources are available to meet the demands of the stimuli.
- Demands are viewed as challenges that are worthy to be pursued and invested in.

Sense of coherence (SOC) represents a position on an "ease/disease" continuum (Antonovsky, 1979, 1986, 1987, 1990, 1996; Cilliers, Viviers & Marais, 1998; Strümpfer, 1990).

For the purpose of this research, sense of coherence is defined as a position on a "ease/disease" continuum, indicating an individual's characteristic orientation towards demanding stimuli. It is influenced by an attitude of self-confidence towards challenges, based on the availability of sources of resistance which enable coping.

### **2.3.2 Theoretical Background to Sense of Coherence**

Clinical Psychology regulates the school of thought on human behaviour in applied psychology. The traditional pathogenic approach emphasises the abnormal. Antonovsky (1979) concluded that living organisms are characterised by a dynamic state of heterostatic disequilibrium in which stressors are omnipresent, so that the human condition is stressful. He arrived at the salutogenic approach, accepting a continuum of ease/disease and rejecting the notion that stressors are only bad. He started investigating the deviant case (Antonovsky, 1979, 1986, Strümpfer, 1990).

### **2.3.3 Components of Sense of Coherence**

Comprehensibility, manageability and meaningfulness explain why a person with a lacking sense of coherence experiences internal and external stimuli as noise, chaos and unpredictable confusion as future possibilities, rather than regarding them as sources of information. Life events will be experienced as the unlucky result of happenings of which the individual is a victim, feeling that nothing in life has value and experiencing all demands as unwelcome challenges (Antonovsky, 1979; Oosthuizen, 1994; Strümpfer, 1990).

#### *2.3.3.1 Comprehensibility*

This construct represents the degree to which internal and external stimuli are understood as clear, ranked, structured, predictable, expectable and consistent information which is observed. The expectation is that such stimuli will also be ranked, understandable and predictable in the future (Antonovsky, 1987; Oosthuizen, 1994).

#### *2.3.3.2 Manageability*

Manageability refers to the ability to deal with matters on the basis of the belief that resources are available to meet the demands posed by the stimuli, and therefore these demands can be coped with. It is the extent to which a person regards an experience as a challenge which can be lived with. The perception that assistance is available, could have a positive effect even in the actual absence of such assistance. Manageability provides a balance between available resources and the demands made on the person (Antonovsky, 1987; Lustig et al, 2000, Strümpfer, 1990).

#### *2.3.3.3 Meaningfulness*

This component represents the presence of a desire to cope and therefore demands are interpreted as challenges, worthy of investment and engagement. It also refers to the extent to which life makes emotional rather than cognitive sense. At least some

problems and demands are experienced as welcome challenges, which motivates a person to invest energy in. It is the most important component of SOC, as it provides the motivation to search for order in the world, to use available resources and to seek out new resources for managing a demand (Antonovsky, 1979, 1987, 1996; Oosthuizen, 1994).

### **2.3.4 Relevance and Outcomes of Sense of Coherence**

The strength of sense of coherence (SOC) is shaped by general life experiences related to consistency, a balance between stress overload or underload and participation in socially valued decision-making processes (Antonovsky, 1996). The modification of a person's SOC could enhance personal growth and add some strength to a person's self-concept, creating the opening for a major change in life circumstances (Strümpfer, 1990). In referring to it as the basis for successful coping with stress, the SOC is a universally meaningful construct, cutting across gender, social class, region and culture (Levert, Lucas & Ortlepp, 2000).

#### **2.3.4.1 *Sense of Coherence and Borders***

Sense of coherence does not imply that all aspects of life are understood and that the person is able to deal with the world, or find it meaningful. People fence themselves in and establish borders outside of which things do not bother them. To maintain a strong sense of coherence, four areas are relevant, namely a person's own feelings, immediate interpersonal relationships, the main area of activity (labour) and existing issues of death, un-preventable failure, shortfalls, conflict and isolation. Within these borders the areas have to be adaptable to allow for a realistic view of the world (Strümpfer, 1990). This implies that a person will set borders to his or her world, so that life within those parameters is experienced as a personal reality that is not too big and does not contain too many variables to be coped with.

#### **2.3.4.2 *Sense of Coherence and Health***

A stronger sense of coherence is related to a bigger chance of maintaining a position on the health-ailment continuum. A person with a strong sense of coherence (SOC)

has a better understanding and interpretation of a stressor as something which should not be given way to. This relieves the impact of life stress on the individual and results in evasion of dangerous activities, or involvement in activities which promote health. Stressors are also viewed as manageable challenges, offering promising and meaningful rewards which are worthy of investing energy in, rather than laming threats which should be reacted to in helpless negativity. Sources of resistance are potentially available for activation to overcome or fight stressors (Antonovsky, 1987). The continuous experience of health-enhancing decisions could foster a belief that the individual has the ability to control his or her circumstantial experiences.

#### **2.3.4.3 *Sense of Coherence and Work***

Work experiences strengthen the sense of coherence (SOC) and impacts on the approach to and performance of work. A strong SOC could be associated with the abilities, skills, training and development that apply within a conducive work environment. Work-related sources of resistance strengthens SOC (Strümpfer, 1990). Work can strengthen the SOC when expectations are known and consistent, when required resources are available and when there is a sense of shared responsibility. The SOC is likely to be strengthened when individual experiences are characterised by consistency, a balance between positive and negative stimuli and when it is possible to participate in shaping outcomes (Lustig, Rosenthal, Strauser & Haynes, 2000). Conducive work experiences over a long period of time, where one's higher class position allows for self-direction, enforces SOC. Independent judgement which is related to the complexity of work content, closeness of supervision and a variable routine is conducive to occupational self-direction (Strümpfer, 1995), which in turn confirms a strong SOC. Under such circumstances, work-related accidents would be coped with better than in circumstances where these conditions do not exist.

#### **2.3.5 Research Previously done on Sense of Coherence**

Much research has been done on sense of coherence (SOC). These research studies cover diverse fields, but since many of these do not consider personality, only



those which could shed light on this research topic, are briefly referred to. Aspects relating to SOC which will be discussed are job satisfaction, traumatic stress, burn-out, measuring of resilience and coping with change.

#### 2.3.5.1 *Job Satisfaction*

Work fills a substantial part of daily life. Sense of coherence (SOC) was found to be related to job satisfaction, job involvement, organisational commitment and conscientiousness. It was found that adult work experience and attitudes could contribute to the development of SOC (Strümpfer & Mlonzi, 2001). The experience of work-related demands as being manageable, understandable and meaningful is associated with a higher level of contentedness with work (Pretorius & Rothmann, 2001). Personality could influence the experience of work (Van Rooyen et al, 1999).

#### 2.3.5.2 *Traumatic Stress*

In a South African study conducted in the banking sector, done on secondary traumatic stress experienced by helping professionals, SOC was found to be a consistent moderator of the relationship between the experiences of workplace trauma counsellors and the indication of secondary traumatic stress. The research focused on the nature of the influence of personality disposition in the experience of trauma. The significance of this study concerns the statistical indications that a higher SOC is related to lower experience of secondary trauma (Ortlepp & Friedman, 2001). Considering the basic assumption that SOC is a personality trait (Antonovsky, 1979), personality does seem to influence the ability to cope with secondary trauma exposure.

#### 2.3.5.3 *Burn-out*

In a South African study on burn-out among psychiatric nurses, sense of coherence (SOC) was found to correlate significantly with emotional exhaustion and depersonalisation. Nurses with a strong SOC and a manageable workload are less likely to experience emotional exhaustion and depersonalisation. Characteristics of the person, involving beliefs about the world, one's relationship with it and

possibilities of dealing with it, determine the ability to cope or failure to cope with perceived stressful circumstances (Levert et al, 2000).

#### 2.3.5.4 *Resilience*

Resilience is defined as a pattern of psychological activity, consisting of emotions, cognition and a motive to be strong in the face of inordinate demands, which energises goal-directed behaviour to cope and rebound. Resilient behaviour comes to the fore in finding resources within oneself, the immediate environment and the world at large. Psychometric properties of a resilience exercise were found to have acceptable correlation with SOC. In a South African study occupational success was found to be predominantly based on education, training and associated skills, related to a strong SOC (Strümpfer, 2001). It is therefore possible that the educational level of the sample group could have an influence on the SOC of individuals in the sample group.

#### 2.3.5.5 *Coping with Transformation*

Coping is regarded as a stabilising factor, which enables psycho-social adjustment to be reached during stress-related periods associated with organisational transformation. A research study conducted in South Africa found that there seems to be a relationship between a lower SOC and a decreased ability to cope with transformation. Copers tend to focus on the benefits of transformation, to adapt, to believe in their own abilities and to do self-investigation. Copers also trust Management, are optimistic about the future, experience work satisfaction and exercise control over negative emotions. They seek information to minimise unsureness, set objectives for themselves, accept responsibility for their own actions, persevere with a plan of action and focus on their work (Fouché & Rothmann, 2001).

This concludes the discussion of sense of coherence as a salutogenic construct, but for obvious reasons further clarification of personality-related factors is required. For this reason an empirical investigation has to be conducted to determine what the nature of the actual relationship between personality and SOC is. Mention was made of the fact that the characteristics of the person which are related to the utilisation of

a sense of coherence, can determine the ability to cope with perceived stress and therefore personal resourcefulness, as described by learned resourcefulness, will be discussed next.

## **2.4 LEARNED RESOURCEFULNESS**

The dynamic nature of society constantly poses demanding, ever-changing situational challenges to an individual's competencies and well-established behavioural repertoires. A general lifestyle leads to the acquisition and maintenance of illness-related behaviour, whereas health-related behaviour is learned and maintained through self-control processes. Learned resourcefulness has its roots in self-management (Rosenbaum, 1990). It attempts to change a person's behaviour, in spite of ongoing stimulation which favours undesirable habits (Strümpfer, 1990), to make a person become less dependent on the environment (Cilliers, Viviers & Marais, 1998). Its basic belief is that people who have been trained in stress inoculation are able to deal effectively with manageable levels of stress (Rosenbaum, 1990).

### **2.4.1 Definition of Learned Resourcefulness**

Learned resourcefulness refers to an acquired personality repertoire which incorporates a set of beliefs, well-learned behaviours and self-control skills applied in the regulation of interfering internal responses for ensuring the smooth execution of ongoing target behaviour (Rosenbaum, 1988). It refers to the individual's beliefs, skills and self-central behaviours, which have been acquired to different degrees through life experience (Rosenbaum & Jaffe, 1983). The focus falls on health aspects and an understanding of how to remain well adjusted, despite exposure to the stresses and strains of life (Rosenbaum, 1988, 1990; Strümpfer, 1990).

In view of the above, and for the purposes of this research study, the writer defines learned resourcefulness as an acquired set of behaviours and skills, applied in regulating behaviour through self-control in the face of stressors, to portray well-adjusted behaviour in accordance with situational demands.

## 2.4.2 Theoretical Background to Learned Resourcefulness

Learned resourcefulness has its origins in behaviour therapy, whereby self-control or self-management techniques are applied to address problem areas related to substance abuse. The underlying core assumption in learned resourcefulness is that, even without formal training, most people have the inherent ability to acquire varying degrees of effective behaviour. The following four basic assumptions underly the model (Rosenbaum, 1990):

- Human behaviour is goal-directed.
- Self-control behaviour is required when obstacles are encountered in the smooth execution of goal-directed behaviour.
- Self-control behaviour is always associated with certain process regulatory cognitions (PRC).
- Multiple and interactive factors influence the PRC and self-control behaviour.

Self-management training attempts to assist people to change their behaviour, to become less dependent on the environment in the face of ongoing stimulation which favours undesirable habits. The acquisition of coping skills brings about a change in a person's perception of a condition from learned helplessness to learned resourcefulness (Meichenbaum & Jaffe, 1983; Strümpfer, 1990). Both Rosenbaum (1990) and Strümpfer (1990) are of the opinion that the person who is trained in stress inoculation is able to handle controllable levels of stress more effectively. They credit Meichenbaum (1977) for first using the term "learned resourcefulness", to suggest that individuals differ in relation to the extent to which they are able and willing to self-regulate internal response interference with a target behaviour. Meichenbaum (1977) made use of self-monitoring of maladapted thoughts, visions, images, feelings and behaviour, problem-solving skills and also the regulation of emotions and other self-control skills as components in stress inoculation training (Rosenbaum & Palmon, 1984).

Rosenbaum (1990) indicated that learned resourcefulness describes the belief of people who have been trained in stress inoculation, that they are able to deal effectively with manageable levels of stress. This includes beliefs, skills and self-control behaviours, acquired to different degrees through informal training from birth. They are evoked in many situations and provide the basis for further learning, while the extent to which such resources have been acquired, differ among individuals. It is a set of complex behaviours, cognition and effects used by a person when he/she faces situations, which require self-control. These repertoires are in constant interaction with the physical and social environment. Individuals reporting sound resourcefulness perceive themselves as being able to deal effectively with emotional stress and difficult tasks which, in turn, enables them to continue with self-regulation. The self-regulation process is conceptualised as consisting of the following three phases (Rosenbaum, 1990):

- Representation, during which a cognitive and/or emotional reaction to changes in the environment or the individual is experienced.
- Evaluation of these changes as desirable or threatening, and if threatening, whether anything can be done about it. This signifies the main impact of learned resourcefulness.
- Action taken to minimise negative effects resulting from changes (Rosenbaum, 1990; Rosenbaum & Jaffe, 1983; Rosenbaum & Palmon, 1984; Strümpfer, 1990).

### **2.4.3 Components of Learned Resourcefulness**

Rosenbaum (1990) is of the belief that highly resourceful people displaying a high degree of learned resourcefulness are physically and psychologically healthier, because they are able to cope better with stress and are inclined to adopt health-promoting behaviour and attitudes. Learned resourcefulness measures self-control behaviours and serves as self-regulation through redressing and reformation processes.

Redressive self-regulation concerns the striving for homeostasis through the elimination of any interfering factors. It is applied to minimise the interfering effects of external (environmental) disruption in ongoing automatic behaviour or routine. Behaviour is guided and reinforced by immediate feedback from the environment. Efforts are directed at resuming the normal functioning which has been disrupted. This enables a person to cope with the physical discomforts caused by illness or painful medical procedures (Rosenbaum, 1990). It could be generalised to indicate a person's efforts to cope with temporary insecurity in the workplace, which might impact on the individual's career.

Reformative self-regulation refers to self-initiated disruptions of customary functioning whereby a change in illness-promoting habits is produced and new behaviours are adopted. It facilitates the acquisition of health behaviours in anticipation of a more rewarding life in the future. Such behaviour could involve a change in lifestyle to prevent future illness. The behaviour is self-generated and minimally influenced by proximal feedback (Rosenbaum, 1990). Successful execution of both redressive and reformative self-control behaviour requires a belief that a person is able to deal effectively with manageable levels of stress by applying the following skills (Meichenbaum, 1985):

- Self-monitoring of maladaptive thoughts, images, feelings and behaviours to control emotional and physiological responses through the use of positive self-statements;
- Problem-solving skills through the application of problem-solving strategies;
- Emotion regulation and other self-control skills, through the delay of immediate gratification.

After successfully applying self-control skills, a person would be more likely to believe in his/her personal ability to effectively cope with a situation, when faced again with a

similar situation (Rosenbaum & Ben-Ari Smira, 1986). Past performance enhances the employment of self-control behaviour.

#### **2.4.4 Relevance and Outcomes of Learned Resourcefulness**

It is not the exposure to uncontrollable events which causes people to become helpless, but rather the way in which they cope with these events. Training in specific coping skills can help them deal effectively with external stressors (Meichenbaum, 1977). In this regard the result of military training and combat experience (Strümpfer, 1995) and the effect thereof on the perception of an improved ability to cope with hazardous tasks apply (Rosenbaum, 1990).

Learned resourcefulness alone is not a sufficient source for self-efficacy expectations, but could influence a person's generally perceived self-efficacy beliefs that he/she is able to cope effectively with a situation (Rosenbaum & Rolnick, 1983; Rosenbaum, 1990). The experience of successfully applying self-control skills can confirm a belief in self-efficacy when faced with a similar situation (Nakano, 1995). Individuals who display a high degree of learned resourcefulness make use of a larger number of self-control mechanisms during a stressful encounter (Meichenbaum & Jaffe, 1983). A high degree of learned resourcefulness indicates a greater trust in the individual's ability to control his or her emotions and cognition. Such individuals do not assign causal attributions to their failure (Rosenbaum & Palmon, 1984). Perceived self-efficacy is based on the belief that one has the appropriate skills at one's disposal (Strümpfer, 1990). Resourceful individuals will employ various skills to minimise the effect of anxiety on performance. Self-regulation of internal responses over time both strengthens the skill and heightens the expectation to do the same in the future (Strümpfer, 1990). It provides a basis for further learning, as it serves as a source from which judgements on self-efficacy in coping are derived. Self-instructional behaviour leads to an ability to cope effectively with stress (Rosenbaum & Palmon, 1984).

## 2.4.5 Research Previously Done on Learned Resourcefulness

A large number of studies have been conducted on learned resourcefulness (LR). As is the case with sense of coherence, these studies cover vast fields, but as personality is considered one variable in this study, only those aspects which could shed light on the relationship between learned resourcefulness and personality are briefly referred to. Aspects related to LR that will be discussed are seasickness, learned helplessness and epilepsy.

### 2.4.5.1 *Seasickness*

Rosenbaum and Rolnick (1983a) undertook a study, which examined the relationship between a repertoire of self-control behaviours and the ability to cope with seasickness. They found that self-control behaviour was an important factor in the performance of the Israeli Navy at sea. Seasick subjects performed worse than those who were not seasick, but subjects who displayed a higher degree of self-control, showed significantly fewer performance deficits in a stormy sea, than those with low self-control. This is indicative of the role that learned resourcefulness plays in circumstances where a person could perceive himself to be subject to an external environment which challenges his self-control.

### 2.4.5.2 *Learned Helplessness*

Meichenbaum and Jaffe (1983) found that negative external circumstances only affected the performance of individuals who reported a low level of learned resourcefulness. Their study focused on the relationship between learned resourcefulness and the ability to cope with uncontrollable adverse stimulation by minimising adverse effects. This could serve as further confirmation of the fact that a person possesses the ability to cope with negative external influences based on his or her ability to exercise self-control through learned resourcefulness.



### 2.4.5.3 *Epilepsy*

The problematic topic of epilepsy, which concerns the temporary and unpredictable loss of self-control during a seizure, was studied by Rosenbaum and Palmon (1984). They found that epileptics who display a high degree of learned resourcefulness experienced low and medium frequencies of seizures. Such individuals were found to be less depressed, less anxious and able to cope better with their disability than their counterparts who reported lower levels of learned resourcefulness and who were exposed to the same amount of seizures. This study indicates that, even in the face of uncontrollable aspects (such as a disability with the potential to influence public behaviour), the level of learned resourcefulness is indicative of the person's mental health.

### 2.4.5.4 *Other Studies*

Rosenbaum (1990) studied preparation procedures applicable to bomb-disposal operators and the training of military parachutists. In both cases a significant improvement in performance was reported after completion of military training (Rosenbaum, 1990). Novice parachutists also performed better during jumps when using more coping-related self-statements (Strümpfer, 1990).

It was found that persons, who displayed a high degree of learned resourcefulness also tolerated laboratory-induced pain for longer periods. They used self-control mechanisms more often, while they reported lower pain intensity and increased use of prophylactic medicine (Rosenbaum, 1980).

Considering previous research conducted in this field it is evident that a person could possess the ability to cope with negative external influences by applying self-control through learned resourcefulness. Learned resourcefulness plays a significant role in the performance of an individual, especially when a person is involuntarily subjected to external environmental circumstances which challenge his/her self-control.

## 2.5 RELEVANCE OF SALUTOGENIC CONSTRUCTS TO PERSONALITY

The cognitive processes that foster self-control behaviour are not only affected by situational and physiological variables, but also by personality (Rosenbaum, 1990). A personality repertoire (Rosenbaum, 1980) is referred to as a set of well-learned behaviours, cognitions and affects that are in constant interaction with the social and physical environment. A personality repertoire influences responses to the environment and is modified by experience, whereby it provides the basis for additional learning. It partially accounts for individual differences in self-control behaviour. It impacts on reaction to disruptions, the evaluation of their effect on well-being and assessment of the ability to cope with them. It influences the judgemental process by allowing for consideration of the alternatives available in respect of self-control behaviour. A person's disposition towards information on stress-related events and the appraisal of the associated adjustment required, influences his/her belief in the personal ability to control an outcome of behaviour (Rosenbaum, 1990).

Characteristics which facilitate coping with, avoiding or combating stressors of human existence are generalised resistance resources (GRRs). They provide individuals with life experiences which are characterised by consistency, a balance of stimuli, and participation in determining outcomes. They enable an individual to perceive the world as making sense (Antonovsky, 1987). These personal characteristics, including resourcefulness, determine one's ability to cope with stress. Successful psychosocial adjustment to stress depends on a positive belief in one's personal coping abilities (Rosenbaum, 1990). The availability and use of GRRs enable one to cope with stressors, by allowing one to make sense of the constant bombardment with stressors. Avoidance or overcoming of stressors, reinforces and strengthens the sense of coherence (SOC), which affects the overall quality of a person's perception of stimuli. (Antonovsky, 1987).

Some individuals cope better with organisational change and organisational influence factors than others. The nature of change, the forces behind it and its duration call for introspection, adaptability, optimism about the future, and control over negative emotions. Information is required about the needs and benefits of transformation to reduce uncertainty and create understanding, support and trust in management. The

stress caused by change has to be coped with on an individual level by drawing on coping resources. Coping resources indicate the presence of personality constructs and characteristics needed for withstanding the threats of stress-invoking change. Characteristics of psychological adjustment are the re-establishment of positive self-worth, the realisation of personal potential through pursuit and implementation of social and vocational goals and the successful overcoming of hampering the achievement of those goals. The resulting occupational success is related to education and training, work experience, work skills and attitudes. (Rosenbaum, 1990).

Cilliers, Viviers and Marais (1998) indicate that the salutogenic model offers a way of describing the use of coping mechanisms in spite of omni-present stressors. Investigation is required to determine whether a specific personality make-up would facilitate coping with stressors to a greater extent than others would. The existence of such a relationship was studied by determining what sense of coherence and learned resourcefulness entail, as described in the literature. The relevance of a personality test, such as the Myers and Briggs Type Indicator, can now be studied.

## **2.6 CHAPTER SUMMARY**

In this chapter sense of coherence and learned resourcefulness were discussed against the background of salutogenesis. In each respective case a definition was presented, the theoretical background discussed whereafter components and outcomes were dealt with. The chapter concluded with a reference to the relevance of sense of coherence and learned resourcefulness to personality. By addressing the above, the theoretical objective of determining how literature conceptualises sense of coherence and learned resourcefulness was met. Personality type will be discussed in Chapter 3.

## **CHAPTER 3**

### **PERSONALITY TYPE**

In this chapter personality type will be discussed, with special reference to the definition of personality, the theoretical background to Jung's theory, the nature of personality types and extensions to the theory. The relevance of these aspects to the organisation will be indicated and, in conclusion, previous correlation research will be discussed in brief.

Individuals respond in varying ways to different types of stressors. According to Aldwin (1994), psychoanalytic approaches to coping with external demands indicate that the primary function of defence mechanisms is to control anxiety, and that such mechanisms are rooted in personality. He indicates that coping styles are expressive of personality, leading to consistency in behaviour across situations, with due consideration for environmental contingencies. As salutogenic factors which facilitate coping have been discussed in Chapter 2, clarification of aspects relating to personality is required.

#### **3.1 DEFINITION OF PERSONALITY**

Meyer, Moore and Viljoen (1997) define personality as the ever-changing, but relatively stable organisation of all bodily, psyche and spiritual characteristics of the individual, which determines his or her behaviour in interaction with the context in which the person finds himself or herself.

According to Dunnette and Hough (1990) personality can be defined as both a person's social reputation and his/her inner nature. The first of these two is public and verifiable, while the second is private and must be inferred.

Personality, as defined by Myers (1998), is the unique pattern of behaviour which an individual portrays in social circumstances, motivated by dynamic energy systems with interacting processes.

For the purposes of this research study, personality is defined as the continuous development of a unique pattern of characteristics associated with a person, which determines specific behaviour in social interaction and in reaction to environmental demands, and is motivated and supported by beliefs.

Jung (1949) defines personality type as a specimen, or example, which reproduces in a characteristic way the character of a species or general class. A personality type is therefore a characteristic model of a general attitude occurring in many individual forms. Personality type will be discussed in the next section.

## **3.2 THEORETICAL BACKGROUND TO PERSONALITY TYPE THEORY**

Personality theories are efforts to declare individual differences by means of a model of human functioning. It is the result of a conscious and continued effort to develop a logical conceptual system for the description, declaration and /or prediction of human behavior. Nothing is more fundamental than the difference between people. Jung's theory is an effort to categorize personalities according to typical characteristics (Keirsey & Bates, 1984; Meyer, Moore & Viljoen, 1997; Myers, 1998). Different approaches apply to psychological thought, of which Jung's analytical theory is a model belonging to Depth Psychology (Meyer et al, 1997).

### **3.2.1 Jung's Personality Type Theory**

Jung (1949) believes that people are not fundamentally alike, but that man is continuously, creatively developing in his striving to become a more complete self (Keirsey & Bates, 1984; Meyer et al, 1997; Myers, 1998). This striving for completeness is based on the individual psyche, which Jung (1949) describes as the totality of all psychic processes, whether conscious or unconscious. The development of the psyche is ascribed to a dialectic relationship between opposing powers. These powers provide the force according to which the psyche develops from a simple undifferentiated, subconscious and natural condition into a complex condition of higher psychological awareness and spiritual fulfilment. Jung's theory of

personality type describes a dynamic theory of personality as energy systems with interacting processes.

Myers and Briggs (1999) observed, studied and elaborated on the ideas of Jung to understand the people around them. The initial driving force behind the development of the Myers and Briggs Type Indicator (MBTI) was to learn and beneficially apply psychological type in appreciation of differences. The instrument explains patterns in basic human functioning (Myers, 1998). Myers and Briggs developed four preference scales to operationalise Jung's theory. Extraversion - Introversion, Sensing - Intuition, Thinking - Feeling and Judging - Perceiving were described. Preferences identified were multifaceted aspects of personality, which enhance the understanding of oneself and of others (Keirsey & Bates, 1984; Myers, 1998).

A thorough understanding of the theory requires that the core concepts of psychic energy and personality dynamics must be investigated, as these form the foundation of his theory. These concepts differ from components described in Section 3.3, in the sense that one has to understand the background to the components before applying them. As the MBTI is based on the theory of Jung (1949), it is essential that the core philosophy behind the MBTI is understood before focusing on the instrument itself.

### **3.2.2 Psychic Energy**

Psychic energy is the value associated with the intensity of the psychic process. It describes the general activity of the mind, whether through thinking, feeling, sensing or intuition. An imaginative activity serving as a direct expression of psychic activity is fantasizing, which is a form of energy appearing as images or content. A person's opinion of himself/herself is influenced by subjectivity, coupled to a tendency to compensate for the one-sidedness of personality type. The effort to maintain psychic equilibrium leads to secondary personality types (Jung, 1949). The flow of psychic energy relies on influences of opposing factors, equivalence and entropy, as discussed below.

### 3.2.2.1 *Opposites*

Opposing factors are present in all humans. Therefore, no one is only good or bad, nor solely introvert or extravert, neither does he/she displays only masculine or feminine characteristics, because the opposite pole of that which dominates on a conscious level dominates the unconscious. People strive towards integrating these opposing factors within themselves into a harmonious whole. Jung's view is holistic in its consideration of structures, processes and contents of the individual psyche within a broad inherited collective relationship known as the collective unconscious. Jung acknowledges physiological, social, psychological and the spiritual or religious dimensions of man (Jung, 1949; Myers, 1998).

### 3.2.2.2 *Equivalence*

Equivalence means that the new era to which an energy shift has taken place must have an equally strong psychic value in desirability. If not, excess energy will flow to the unconscious. There is a constant flow of energy redistribution within the personality (Gabriel, 2000; Jung, 1949).

### 3.2.2.3 *Entropy*

Entropy refers to the process of equalisation of differences in energy. This exchange of energy is believed to be the basis of functioning of homeostasis. According to Jung, there is always a tendency towards balance in personality (Gabriel, 2000; Jung, 1949)

Levels of psychic energy differ from one person to another, causing observed and perceived differences among people. Another aspect to consider in fundamentally different personality types is personality dynamics.

## 3.2.3 **Personality Dynamics**

The term personality dynamics refers to the interaction of all four preferences within one type of personality. Personality preference acts as an energy system with

dynamic interacting processes, so that personality is not stable, but allows for movement along the four continuums. Dynamics suggests a hierarchy within which a type uses the ego, personal unconscious, collective unconscious and archetypes (Myers, 1998). These four aspects are discussed below.

### 3.2.3.1 *Ego*

The ego is a complex of representations constituting the focal point of consciousness, having a high degree of continuity and identity. It contains all conscious aspects of both internal and external functioning. Internal functioning is the structuring of growing awareness to render an identity that will remain constant over time. External functioning refers to the structuring of sensed observation, facilitating interaction with the external environment (Meyer et al, 2000).

### 3.2.3.2 *The Personal Unconscious*

The unique individual unconscious serves as the store of individual experience, interaction and the interpretation of those interactions. The content is accessible to the conscious. Content is formed through unconsciousness due to loss of impact - aspects lacking in intensity to penetrate the conscious, but reaching the unconscious and content being shut out to the unconscious. Complexes exist within the unconscious, which are ideas and experiences, loaded with emotional intensity (Jung, 1949).

### 3.2.3.3 *The Collective Unconscious*

The collective unconscious represents the possibilities of content from previous generations. It is a blueprint forming the basis of the individual psyche. The collective unconsciousness is represented in conscious terms through pronounced tendencies or definite ways of looking at things (Jung, 1949).



#### 3.2.3.4 *Archetypes*

The archetype is a symbolic formula which begins to formulate in the absence of conscious ideas, or when existing ideas are impossible on account of their nature. People are different in fundamental ways, but possess the same multitude of instincts – known as archetypes - to drive them from within. The inherent nature of archetypes is inaccessible to experience. This represents the psychic function of the ancestral line of organic existence, which is condensed into different types of personality. It represents all happenings since the earliest times, and is distinct in being marked more often and intense when used (Jung, 1949; Keirsey & Bates, 1984; Myers, 1998).

Having considered the above aspects included in the theoretical background to personality type theory, individual differences can still not be declared sufficiently. Jung's personality type theory, psychic energy and personality dynamics have to be put into context and made practically understandable. To further enhance the understanding of human behaviour against the background of personality, the components of personality type will be discussed.

### **3.3 THE COMPONENTS OF PERSONALITY TYPE**

Peoples' minds seem to be active in terms of two mental activities - they are either perceiving (taking in information), or they are judging by organising information and coming to conclusions. Perceiving takes place either through sensation (sensing) or intuition. Judging takes place either through thinking or feeling (Myers, 1998).

Eight mental preferences, as described by Jung (1949), are fundamental patterns of mental activity available to people. These are derived from the combination of the two different orientations to the world with the four mental processes. Differences between people stem from innate differences in what people prefer. Natural, preferred mental processes (dominant function) cause people to direct energy towards developing habits of behaviour and personality patterns characteristic of that function (Myers, 1998).

The Myers and Briggs development of Jung's theory (1949) described the eight dominant functions and observed that other functions are used in a hierarchy of preference. Terminology used is associated with the dominant and auxiliary function. The dominant function indicates a function's central core that is the most important, used most often and forms the basis for motivation. The auxiliary function provides balance within the function. This implies that each personality type has a reliable way of perceiving or taking in information, and a trusted way of judging and making decisions (Myers, 1998).

The MBTI is an interpretation of the essence of Jung's (1949) theory, based on the belief that preferred behaviour relates to two sets of attitudes (introversion/extraversion and judging/perceiving) and four basic functions or processes (sensing/intuition and thinking/feeling). Attitudes are always placed at the beginning and at the end of the four-letter preference profiles, while functions are enclosed by attitudes, to result in a preference code (Van Rooyen, De Beer & Proctor, 1999)

### **3.3.1 Jung's Personality Types**

Preferences in respect of the four dichotomies, each consisting of two opposite poles, can be explained in a similar way as being naturally left- or right-handed, where the one hand feels competent and the other feels awkward. Inasmuch it is undesirable to write with the non-preferred hand for a full day, a natural preference for one of the two opposites on each MBTI dichotomy exists. Both poles are used at different times, but not with equal confidence. A person can have a dichotomous preference to some degree for both aspects involved on a continuum. As time passes, preference may strengthen or weaken. Preferences are not necessarily inborn, nor developed during infancy and youth. A person feels most competent, natural and energetic when using preferred methods (Keirsey & Bates, 1984; Myers, 1998).

MBTI preferences result from differences between people in their focus of attention and source of energy being either extraversion or introversion. These differences explain the preferred way of taking in information, through either sensing or intuition.

Decision-making preference is dictated by either thinking or feeling, while orientation towards the external world takes place through either judging or perceiving. Preference cannot be judged as being right or wrong, since each pole represents normal, reasonable and valuable human behaviours, as explained below (Myers, 1998).

### 3.3.1.1 *Extraversion/Introversion*

The extraversion/introversion dichotomy is derived from the source of energy and preferred focus of attention. Preferred attitude will have the most potency, while the other will be the suppressed minority. The preferred attitude is expressed in, and will reflect the aim, will and achievement, of the conscious personality (Keirsey & Bates, 1984).

Extraversion is characterised by being attuned to the external environment, a preference for communicating by talking and working out ideas by talking them through. People are chosen as a source of energy. Learning is best done by doing or discussing, whilst having broad interests, being sociable and expressive and readily taking initiative in work and relationships. Such people prefer to focus on the outer world of people and activity, directing energy and attention outward and receiving energy from taking action and interacting with people. These people have a need for sociability – when not with people, they feel lonely (Keirsey & Bates, 1984; Myers, 1998).

Preference for introversion is associated with a focus on a person's own inner world of ideas and experiences, whereby energy and attention are directed inward and energy is received by reflecting on thoughts, memories and feelings. Solitude is chosen as a source of energy. Associated characteristics are the preference for communicating in writing, being drawn to the inner world, working out ideas by reflecting on them. Learning takes place through reflection and mental "practice". There is an in-depth focus on interests, being private and contained and taking initiative when the situation or issue is very important to them. These individuals have a territorial need, having appreciation for private places in both the mind and environmental space (Keirsey & Bates, 1984; Myers, 1998).

### 3.3.1.2 *Sensing/Intuition*

Preference for the way information is taken in belongs to the sensing/intuition dichotomy.

Sensing as a preference dictates taking in information that is real and tangible. These individuals regard themselves as practical. Such people are observant about specifics of what is going on around them and are especially attuned to practical realities. Their characteristics are being orientated to factual and concrete present realities and being observant while remembering specifics. They carefully and thoroughly build towards conclusions, trust their experience and understand ideas and theories through practical application. They have an orientation towards the past (Keirsey & Bates, 1984; Myers, 1998).

Those who prefer intuition like to take in information by seeing the big picture while focussing on relationships and connections between facts. These individuals regard themselves as innovative. New possibilities are identified through a desire to grasp patterns. Characteristics associated with this preference are an orientation towards future possibilities, imaginative and verbal creativity, the ability to focus on the patterns and meanings of data and the recollection of specifics when related to a pattern. These people quickly move to conclusions and follow hunches, while having a desire to clarify ideas and theories before putting them into practice. They live in anticipation and trust their inspiration (Keirsey & Bates, 1984; Myers, 1998).

### 3.3.1.3 *Thinking/Feeling*

In making decisions the thinking/feeling dichotomy applies. Thinkers like to look at logical, impersonal consequences of a choice or action. They endeavour to mentally distance themselves from the situation to ensure objective examination. The objective of finding a standard or principle applicable to similar situations is reached by identifying a malfunction or deviation which can be corrected. This is achieved through critique and analysis of the situation at hand.

Thinkers are characterised by a preference for analysis, cause and effect reasoning, solving problems through logic, striving for an objective standard of truth and being reasonable. They can be tough-minded and strives for fairness through equal treatment of all (Keirsey & Bates, 1984; Myers, 1998).

Feelers consider feelings in decision making by mentally placing themselves in the situation and by identifying with everyone. This results in value-based decision making related to honouring people. In appreciating and supporting others while looking for qualities to praise, they are energised to move towards their goal of creating harmony and treating each person as a unique individual. They are characterised as being emphatic and being guided by personal values they assess the impact of their decisions on others and strive for harmony and positive interaction. They are compassionate and appear tender-hearted (Keirsey & Bates, 1984; Myers, 1998).

#### 3.3.1.4 *Judging/Perceiving*

This preference completes the structure of personality type. It ascertains the dominant process. Jung does not specifically focus on judging and perceiving. Jung does not describe balanced personality types as having an auxiliary process at their disposal. Each process is portrayed in detail while indicating contrasts between their introverted and extraverted forms, which results in the description of pure types. The combinations of judging and perception has wide applicability. Personality theory has to be able to explain people as they are. Jung's theory therefore had to be extended to include the essential aspects of the constant presence of the auxiliary process, results of the combinations of perception and judgement and role of the auxiliary in balancing extraversion-introversion. The auxiliary supplements ensure a balance between judging and perception, and in introversion and extraversion. For a person to live a happy and effective life, a balancing auxiliary is required to enable him/her to adapt, either in the direction of the inner self or the surrounding environment (Myers, 1980).

The judging person focuses on making decisions, seeking closure, planning operations or organising activities. Such a person seems to be organised, purposeful

and decisive in his/her outer behaviour. Such people approach the world by seeking closure and structure, bringing order and ensuring resolution of situations. Their work is planned, they are time and deadline orientated and like to get things settled and finished.

Perceptive individuals focus on incoming information. These people seem spontaneous, adaptable and open to new events and changes. They are curious about their environment. They relate to the world in an open, flowing manner and adapt easily to new circumstances. They prefer to leave things open for alteration and do not like to follow lists or plans. These individuals feel energised by last-minute pressures, seek variety in experience and don't want to miss out on anything (Van Rooyen et al, 1999).

### **3.3.2 Attitudes**

Extraversion/introversion and judging/perceiving are regarded as attitudes. Attitudes are always placed at the beginning and the end of a four-letter profile, which encodes the preferred functions in personality type. This four-letter profile is derived from the strongest of the respective poles on the four continuums. Both extraversion (E) and introversion (I) determine both style of behaviour and a person's subjective experience. The concepts of judging (J) and perceiving (P) refer to the way in which a person relates to the outside world (Van Rooyen et al, 1999). This means that a person could display a personality type which is indicated as ISTJ or ENFP, being only two of the sixteen possibilities of the MBTI.

### **3.3.3 Functions**

Jung describes a psychological function as a form of psychic activity that, theoretically, remains the same under varying circumstances (Jung, 1949). He distinguishes four basic functions of which two are rational and two irrational. Sensing/intuition (S/I) and thinking/feeling (T/F) are regarded as functions. Functions become stronger and develop through use (Keirse & Bates, 1984). The functions of sensing and intuition focus on how people perceive the flow of what is happening, irrespective of how it is organised, evaluated or ordered. They are regarded as

perceiving functions. Thinking and feeling are accepted as similar (judging) functions, because they operate according to the principles of discrimination and evaluation (Van Rooyen et al, 1999).

### **3.3.4 Dynamic Interplay between Attitudes and Functions**

Choice of behaviour is affected by either the attitude of extraversion or introversion, whereby perception and judgement are directed to either a preference for the environment or for inner reflection. The function of perception can either involve sensing, with a focus on the here-and-now, or intuition which is focused on future possibilities. The judging function is either focused on thinking - using logic to reach conclusions - or feeling, whereby a person focuses on values and merit in arriving at conclusions. Finally, judgement or perception as attitudes, can either be focused on the outer world (whereby it is important to focus on the outer world to come to closure, to think or feel), or to remain open to new input (by making use of either sensing or intuition) (Van Rooyen et al, 1999).

### **3.3.5 Temperament Types**

Temperament and Jungian type are based on different assumptions and models of personality, but can compliment each other. The MBTI gives access to both by drawing comparisons between them. Four broad patterns of inter-related characteristics are described by temperament. Temperamental people are idealists (intuitive feelers - NF), rationals (intuitive thinkers - NT), artisans (sensing perceivers - SP) and guardians (sensing judges - SJ). Idealists strive to be authentic, rationals prefer competence through knowledge, artisans want freedom to choose their next action and guardians focus on security, stability and a sense of belonging (Myers, 1998).

#### **3.3.5.1 *Idealists - Intuitive Feelers (NF)***

This enthusiastic and insightful personality type prefers intuition and feeling (they base their decisions on personal likes and dislikes) by focusing their interest on possibilities, rather than concrete situations. Pessimistic moments are hidden and

unpleasantness is avoided. A transactional, personal focus on the individual is maintained. Their personal warmth lubricates the internal fabric of the organisation and finds scope for their abilities in understanding the complexities of communication, by saying the right thing at the right time. They prefer working in a democratic environment, as they want to be respected as unique persons, making unique contributions. When treated in an impersonally manner they become irritated. Vulnerability to please causes them to internalise work unit failures. They quickly lose self-confidence when things do not go well, as negative criticism or disapproval causes them to be immobilised and discouraged – especially when coming from seniors. The values and priorities of others are held above their own - to the extent that they could become over-tired or find little personal time. This type is frequently torn between the needs of seniors and subordinates, as they develop understanding for both sides. They excel at working with and through people (Keirsey & Bates, 1984; Myers & McCaulley, 1985).

#### 3.3.5.2 *Rationals - Intuitive Thinkers (NT)*

This type is logical and ingenious, having a preference for intuition and thinking, while their interest is focused on possibilities, which are dealt with through impersonal analysis. They provide vision and theoretical models for change by finding scope for their abilities in theoretical and technical developments. Therefore, they must conceptualise and design something to feel good about their contribution within the organisation. Their scepticism demands that things make sense, to the extent that they question everything and base their answers on laws and principles. They will stand alone against the crowd, which, coupled to their high expectations - makes qualifications vital. A person holding high office signifies nothing unless supported by intellectual competency. Their avoidance of redundancy and reluctance to state the obvious result in others having difficulty grasping the detail of their goals. For them, crises do not exist - since they cannot bear the same mistake being made twice. They become dissatisfied when designs and plans are not carried out as desired. Maintenance does not interest them, as they focus on results. They also do not enjoy personal comments and are therefore experienced as cold and distant. Being restless and unfulfilled, they may leave the organisation if proper use is not made of their talents (Keirsey & Bates, 1984; Myers & McCaulley, 1985).



### 3.3.5.3 *Artisans - Sensing Perceivers (SP)*

As adaptable realists, they are good observers of the immediate situation. They focus on new experiences and facts which have immediately applicability to the present moment, while inwardly they are judging their circumstances. They have a strong sense of reality and are matter-of-fact about things. Based on a curiosity about, and lending excitement to, the world around them, they also seek and welcome change and can easily adapt to situations as they arise. They can spot and prevent small problems early. Not being threatened by the possibility of failure, leads them to boldly take risks. They are excellent problem solvers who like to troubleshoot, and work clever, with grace and flair. If there are no problems to challenge, they can become rigid. They do not use energy to worry about aspects which cannot be changed and they do not fight the system. Being process-oriented negotiators, for whom survival is the issue, they get people to co-operate by acting with sureness, endurance and timing. As they do not like the unfamiliar, they are impatient with theories and do not get involved in efforts to understand underlying motives or hidden meanings (Keirsey & Bates, 1984; Myers & McCaulley, 1985).

### 3.3.5.4 *Guardians - Sensing Judges (SJ)*

This realistic, decision-making type indicates a preference for judging the good or bad in their outward behaviour, while inwardly they focus on facts which apply to the immediate experience. As bureaucratic traditionalists, they lend stability and confidence, seek order in their environment, are organised, dependable and conservative, dislike ambiguity and resist change. Problems are solved through reliance on past experience. They are steady, patient, cautious and careful, detail-conscious, thorough and accurate, and therefore, seldom make errors of fact. Consequences are weighed before decisive action is taken, but impatience with delays and complications could cause them to decide too quickly and to ignore new developments. Their over-concern with the possibility that things could go wrong uses energy in that they anticipate crises which never occur. Through their high competitiveness they could set themselves up for failure in pursuit of a perfect organisation through long hours of hard work. In understanding production-oriented

organisation values, they try to upkeep them by maintaining and meeting standards, policies, rules, schedules, routines, regulations and the organisational hierarchy. They display a sense of belonging, permanence, responsibility and obligation/duty. They are not always accurate in perceiving interpersonal transactions, which could lead to unnecessary criticism and harshness. They need appreciation, but experience difficulty in giving and receiving compliments. (Keirsey & Bates, 1984; Myers & McCaulley, 1985).

### **3.3.6 Attitudes and Functions Combined**

The use of these preferences develops into psychological types as defined by Jung (1949) and Myers (1998). It signifies the underlying personality pattern which stems from the dynamic interaction between the four preferences, environmental influences and personal choice. The tendency is to develop behaviours, skills and attitudes associated with a specific type, distinctly different from and even opposite to other types. Each combination of these four sets of preferences has its own potential strengths and possible weaknesses (Jung, 1949; Myers, 1998).

## **3.4 OUTCOMES OF THE THEORY**

The MBTI is used in a number of ways, among which education, counselling and career guidance and in situations which require co-operation, teamwork and effective communication. It is useful when different teaching methods have to be developed, different learning methods have to be understood and enhances constructive teamwork. It is of use in determining the direction of one's life through the appreciation of one's personal strengths, in acknowledging similarities and differences, in promoting mutual acceptance and in making career decisions. It enhances communication through approaches which enhances agreement and verbalisation of understandable concepts and the creation of a climate in which differences are regarded as interesting and valuable (Myers & McCaulley, 1997).

**Table 3.1: Characteristics Frequently Associated with each Type (Myers & McCaulley, 1985).**

	Sensing Types		Intuitive Types	
Introverts	<b>ISTJ</b> Serious, quiet, earn success through concentration and thoroughness. Sees to it that everything is well-organised. Takes responsibility. Makes up own mind as to what should be accomplished, and works toward it steadily, regardless of protests or distractions.	<b>ISFJ</b> Quiet, friendly, responsible and conscientious. Work devotedly to meet obligations. Lends stability to a project or group. Thorough, painstaking and accurate. Interests usually not technical. Patient with detail. Loyal, considerate, perceptive, concerned with others' feelings.	<b>INFJ</b> Succeed through perseverance and a desire to do what is needed. Best efforts put into his/her work. Quietly forceful, conscientious and concerned for others. Respected for firm principles. Honoured and followed for clear visions on how to serve the common good.	<b>INTJ</b> Original minds, pursuing own ideas and purposes. Long-range vision, finding meaningful patterns in external events. Can organise and carry through a job in fields which appeal. Sceptical, critical, independent, determined. High standards of competence/performance.
	<b>ISTP</b> Cool, quiet, reserved onlookers. Observes and analyses life with detached curiosity and flashes of humour. Interested in cause and effect, how and why things work. Organises according to logical principles. Gets to the core of a problem and finds the solution.	<b>ISFP</b> Retiring, quietly friendly, sensible, kind and modest. Shuns disagreements; does not force opinions or values on others. Does not care to lead, but is a loyal follower. Relaxed about getting things done. Enjoys the present moment and does not spoil it through haste or exertion.	<b>INFP</b> Quiet observer, idealistic, loyal. Outer life congruent with inner values. Curious, sees possibilities, catalyst to implement ideas. Adaptable, flexible and accepting, unless a value is threatened. Understands people and fulfilling potential. Little concern about possessions or surroundings.	<b>INTP</b> Quiet and reserved. Enjoys theoretical or scientific pursuits. Solves problems through logic and analysis. Interested in ideas, with little liking for parties or small talk. Has sharply defined interests. Needs career where a strong interest can be used and useful.
	<b>ESTP</b> Good at on-the-spot problem solving. Likes action, enjoys whatever comes along. Likes mechanical things and sport-friends on the side. Adaptable, tolerant, pragmatic; focused on getting results. Dislikes long explanations. Best with objects that can be worked, with handled or assembled.	<b>ESFP</b> Outgoing, accepting, friendly, enjoys everything and makes things more fun for others. Likes action - makes things happen. Knows what goes on and joins eagerly. Remembers facts easier than mastering theories. Best in situations which require common sense and practical ability with people.	<b>ENFP</b> Enthusiastic, high-spirited, ingenious, imaginative. Able to do anything that interests him/her. Quick with a solution for a difficulty and ready to help with a problem. Relies on the ability to improvise, instead of preparing in advance. Can find compelling reasons for whatever he/she wants.	<b>ENTP</b> Quick, ingenious, good at many things. Stimulating company. Alert and outspoken. Argues for fun on either side of a question. Resourceful in solving new and challenging problems - may neglect routine assignments. Turns to one interest after another. Find logical reasons for what is wanted.
Extraverts	<b>ESTJ</b> Practical, realistic, matter-of-fact, natural head for business or mechanics. Not interested in abstract theories; wants learning to have direct and immediate application. Likes to organise and run activities. Often a good administrator; decisive, quick to implement decisions, takes care of routine details.	<b>ESFJ</b> Warm-hearted, talkative, popular, conscientious, co-operator, active committee member. Needs harmony and may be good at creating it. Always doing something nice for someone. Works best through encouragement and praise. Main interest is things that directly and visibly affect people's lives.	<b>ENFJ</b> Responsive and responsible. Concerned about what others think or want, tries to deal with things, regarding other's feelings. Presents proposals or leads group discussions with ease and tact. Sociable, popular, sympathetic. Responsive to praise and criticism. Enables others to achieve their potential.	<b>ENTJ</b> Frank, decisive, leaders in activities. Develops and implements comprehensive systems to solve organisational problems. Good in anything that requires reasoning and intelligent talk, such as public speaking. Well-informed and enjoys adding to his/her fund of knowledge.

### **3.4.1 Sixteen Types**

Jung's personality types are divided into two groups, taking into consideration the auxiliary process. This implies that, for instance, the introverted thinker can either prefer sensing or intuition. The result is sixteen personality types, each of which is the outcome of its own preferences that are closely related to other types which share these preferences. As can be seen from Table 3.1, the sixteen types can be represented as a four-by-four grid, indicating the relationship between the respective types. These types are grouped as either sensing or intuitive types, and extraverts or introverts (Myers, 1980; Myers & McCaulley, 1985).

### **3.4.2 Personality Type Development**

Respective personality type strengths can only materialise when adequate type development has taken place. In exercising a preferred type, to become skilful and differentiated in its use, the function becomes more controlled and trustworthy, which brings about a sense of competence (Myers, 1980).

## **3.5 RELEVANCE TO THE SITUATION/ ORGANISATION**

No one lives his/her life according to a psychological schema, or functions in an observably clear-cut manner. Even so, people still have their natural preferences in spite of expectations or professional demands (Malone, 1991). The MBTI is one of the most widely used psychological measuring instrument world-wide and its use is of importance, as it frequently features in the Organisation Development environment (Furnham & Stringfield, 1993; Roush & Atwater, 1992). The positive, affirming nature of the MBTI encourages self-disclosure and respect for differences. It offers leaders an opportunity for learning how to make the most of the human resources which he/she has to lead (Myers, 1998). The instrument is widely used in the organisation involved in this study.

## **3.6 RESEARCH PREVIOUSLY DONE ON THE MYERS AND BRIGGS TYPE INDICATOR**

The Myers and Briggs Type Indicator (MBTI) is widely used as a research tool (Van Rooyen et al, 1999). Some of these research projects relevant to this study will be discussed briefly.

### **3.6.1 Experience of Stress**

Khalsa (1993), indicates that introverts experience difficult challenges as stressful to a greater extent than extraverts do. Judging personality types experience difficulties as stressful, especially if these are time-related. Psychological type does not seem to differentially mediate the correlation between difficulties and psychological symptoms of stress. There seems to be a positive correlation between stressors and symptoms, but comparisons of the correlation between pairs of personality types seem not to differ, as expected. As regards symptoms related to self-expression, inner conflicts, confrontation with others and difficulties in the workplace, introverts suffer from psychological *symptoms* of stress, whereas feelers *experience* physiological stress.

### **3.6.2 Coping Resources and Burn-out**

Type-specific coping resource deficits exist and can be measured. A negative correlation exists between overall coping scores and burn-out. Introverts have fewer overall coping resources and show type-specific deficits in self-disclosure. Professional burn-out and social support stress are experienced to a greater extent by introverts, than by extraverts. Perceptive types have more type-specific deficits in structuring, and experience more severe professional burnout than judging types. Feelers have fewer coping resources than thinkers (Skinner, 1991).

### **3.6.3 Personality and Mental Health**

Limited literature is available on the subject of the Myers and Briggs Type Indicator (MBTI), sense of coherence (SOC) and learned resourcefulness (LR). It is therefore

imperative that other studies on the same theme should be considered, even if the instruments used differ. In this regard, Furnham (1996) conducted a correlation study between the NEO-PI five-factor model of personality and the MBTI. A clear overlap exists between these two measures. Agreeableness closely relates to the thinking/feeling dimension of the MBTI, conscientiousness to the judging/perceiving dimension and extraversion to the extraversion/introversion dimension. Neuroticism seems to correlate with a variety of MBTI dimensions, although inconsistently. Compton (1998) indicates scores on neuroticism, conscientiousness and extraversion to be significant predictors of mental health.

In the light of previous research it seems evident that agreeableness is positively associated with most of the mental health measuring instruments. By indicating more overall coping resources and experiencing less professional burn-out, extraversion seems to be a significant predictor of sound mental health. Extraverts experience difficult challenges as less stressful than introverts do. Introverts show type-specific deficits in self-disclosure and experience stress related to social support, while suffering from psychological *symptoms* of stress. Perceptive types seem to have more type-specific deficits in structuring, and experience more severe professional burn-out than judging types. The latter experience difficulties as stressful if these are time-related. It seems that the two continuums with the greatest effect on the ability to cope from a SOC and LR point of view, are extraversion/introversion and judging/perceiving. The literature consulted shows extraversion and judging to be the strongest indicators of coping ability.

### **3.7 INTEGRATION**

To put the literature investigation into perspective, a brief look at the role of stress is required for contextualizing the integrated material. Stress is a mental state brought about by a lack of equilibrium or an imbalance between environmental demands and an inadequate individual ability to cope with these (Janisse, 1988). Awareness of a stressor is related to individual characteristics and material resources which have a theoretical link with individual psychosocial resources in the form of generalised coping styles or general, stable qualities of individuals. Coping efforts vary according to the situation. The emotional mature coping style is associated with positive

outcomes in dealing with stress (Aldwin, 1994). Preference of either direct action or defence mechanisms, capacities, acquired skills and repertoire of coping strategies play a role (Myers, 1998).

The greater the extent to which an undesirable event is experienced as stressful, the more likely a person's coping abilities will be overwhelmed, which will result in disorder. On account of the threat posed to physical survival or emotional well-being, this undesirability is the crucial factor in stimulus appraisal (Kaplan, 1983). Intensity of the demand for a change, or the amount of readjustment and adaptation is the main factor causing stress and stress-related illness. The greater the extent to which a change is experienced, the more likely coping or generalised resistance resources will be overtaxed (Antonovsky, 1979).

Appraisal of a stress stimulus is based on stimulus characteristics and personality traits; thereafter it is not life events per se, but the way in which they are appraised that contributes to the level of stress (Levert et al, 2000). The tendency to perceive events and circumstances as stressful, the way in which these are coped with and failure dealt with depend on personal characteristics (Janisse, 1988). Personal characteristics involve a person's beliefs about the world and his/her relationship with it - especially possibilities of dealing with it. Inter-individual as well as intra-individual differences exist in appraising potential stressors (Aldwin, 1994). People react differently to the same stimulus and individuals do not always react to the same potential threat in the same way (Myers, 1998). The individual's life history, the individual's cognitive map, experience of stress-inducing situations, motivation and values, sensitivity and his/her actual mental state of the individual, play a role in situation appraisal (Aldwin 1994; Janisse, 1988; Myers, 1998).

A person's reaction to a stressor depends on the situation and the individual himself/herself. Individual personality dimensions determine differences in the level of arousal with regard to tolerability or vulnerability to stressors. Factors playing a role are psychic states, preference of response to stress, physiological reactions and individual differences in behaviour (Myers, 1998). A healthy response to stressful experiences is the result of a flexible, resourceful personality which allows for satisfactions, sublimation, release outlets for controlled and neutralised aggression

and attachment to significant others (Kaplan, 1983). The existing value of learned resourcefulness will determine how a person deals with a situation while recognising and utilising prior learning (Aldwin, 1994), for example military experience. Situation- and reaction-specific interaction or social factors and specific individual experience influence personality dimensions, thus moulding individual differences in dealing with stress (Janisse, 1988; Levert et al, 2000).

In striving towards the complete self, continuous creative development of personality takes place (Jung, 1949), whereby life is directed by positive, purposeful goals, growth and change, which results in unique patterns of characteristic behaviour. Past- and future-oriented occurrences influence behaviour patterns. From the earliest psychological development of a person influential environmental factors force a person to develop a capacity for dealing with challenges which demand adjustment and self-management (Meyer et al, 2000). Successful or unsuccessful behaviour in stress-inducing situations, situation- and reaction-specific interaction, social factors and specific individual experience - reinforced by parents and significant others - influence and mould personality dimensions (Janisse, 1988; Papalia & Olds, 1985). This leads to individual differences in styles of coping with stress (Van Rooyen et al, 1999). The influence of personality factors is evident in individual differences in ways of coping with stress. Personality types differ significantly with regard to the ability to handle different levels of stress (Janisse, 1988). One person might be vulnerable to stress, but effective in coping, whereas another type could be highly invulnerable, but coping poorly (Vollrath & Torgersen, 2000).

Against the background of research findings related to the MBTI, extraversion-introversion is one of the most important traits which influence performance when perceiving a situation as threatening. Introverts have fewer overall coping resources and show type-specific deficits in self-disclosure. The introvert would react to stressors by withdrawing into an inner world that could lead them to analyse the situation in depth, before reacting. A higher degree of professional burnout and social support stress are experienced by introverts, than by extraverts (Janisse, 1988; Levert et al, 2000). The intuitive person, who focuses on patterns and is imaginatively future oriented, could perceive results to be negative and bigger than what the actual situation has to offer (Aldwin 1994; Janisse, 1988; Myers, 1998). Feelers have fewer



coping resources than thinkers, while perceivers types have more type-specific deficits in structuring and experience a higher degree of professional burn-out than judging types (Skinner, 1991). Research on the five-factor theory of personality, which describes personality disorders, mental health and optimal personality development, consistently indicates a partial fit between the five-factor model and measures of experience, which is a significant predictor of mental health (Compton, 1998). The basic personality factor extraversion is associated with stress and coping (Vollrath & Torgersen, 2000). This finding supports those of research conducted on the MBTI and the NEO-PI five-factor model by Furnham (1996), who indicated that a positive correlation exists between the NEO-PI extraversion and the MBTI extraversion/introversion dimension.

As a result of life experiences, sense of coherence (SOC) develops as an outcome variable during a person's early childhood and has been established by the time adolescence comes to an end. By this time, conceptual ability and orientation towards life have also been developed. Once formed and set, it is unlikely that a person's SOC will change in any radical way (Antonovsky, 1987; Frankenhoff, 1998). The SOC focuses on a personality dimension as a major contributor to the ability to cope. Sense of coherence offers a set of personality traits for explaining individual differences in adjustment and the ability to cope with stress associated with life challenges, for example disability (Lustig et al, 2000). Different coping styles and vulnerabilities, which are directly related to the individual's personality, predispose people to psychological stress (Viviers, 1998).

Learned resourcefulness (Rosenbaum, 1990) has its roots in self-management. Health-related behaviour is learned and maintained through self-control processes. It is an acquired set of behaviours and skills, applied by adjusting and regulating behaviour through self-control in the face of stressors to portray well-adjusted behaviour in accordance with situational demands (Cilliers, Viviers & Marais, 1998; Rosenbaum, 1990; Strümpfer, 1990). Stress inoculation training could possibly allow a person to increase his/her capacity for coping with stress. This is where learned resourcefulness comes into play. People trained in stress inoculation are able to deal effectively with manageable levels of stress. They are less dependent on the

environment, in spite of ongoing stimulation which favours undesirable habits (Janisse, 1988; Rosenbaum, 1988, 1990; Strümpfer, 1990).

### **3.7.1 Conclusion**

Termination of employment, as experienced by the respondents in this research study constitutes a major source of stress among men with stable work histories, according to Kaplan (1983). Such irregular adjustment could place extreme demands on an individual. The greater the demands for adjusting to changes in the external environment, the more coherent and resourceful an individual will have to behave. If an element of undesirability is involved in the forced adjustment, while the demands for adaptation are perceived to be continuous, the defence and coping mechanisms might be severely overtaxed. This could result in a person behaving in different ways than usual. This uncommon behaviour is explained by Jung (1949) and Myers (1980) who indicate that, to live a fulfilling life, balance is needed in adapting to the demands of either the inner self, or the surrounding environment (Myers, 1980).

Owing to a pro-active approach to his/her existence, a personality profile characterised by a salutogenic orientation will approach his/her work more positively. Considering the characteristics assigned to extraverts, sensors, thinkers and judgers, these preferences could be indicative of an ability to cope better with potential and real stressors, than their respective counter-poles (Janisse, 1988, Lustig et al, 2000; Myers, 1998; Viviers, 1998). Stress, psychopathology and health-related personality characteristics represent integrated patterns of association (Ghorboni, Watson & Morris, 2000). Health-related behaviour is learned and maintained through self-control processes, while a relationship exists between personality, stress and physical illness. Many chronic health disorders are influenced by attributes of the individual (Frankenhoff, 1998). These attributes can be translated into personality type, which is related to mental health (Cilliers et al, 1998; Rosenbaum, 1990).

In this study, it is therefore hypothesised that a relationship exists between personality characteristics (measured by the Myers and Briggs Type Indicator) and factors which facilitate coping (through sense of coherence and learned resourcefulness).

### **3.8 CHAPTER SUMMARY**

In this chapter personality type was discussed. It covered the definition of personality, the theoretical background to Jung's theory of personality, the nature of personality types and extensions to the theory. The relevance of these aspects to the organisation was indicated and previous correlation research was discussed briefly. Finally, sense of coherence, learned resourcefulness and personality type were integrated. The following literature objectives were therefore achieved: Personality type was conceptualised according to the four Jungian-based, Myers and Briggs Type Indicator continuums; and the literature-based relationship between personality type and the salutogenic constructs of sense of coherence and learned resourcefulness respectively, was confirmed. The next chapter will deal with the empirical investigation of the study.

## CHAPTER 4

### EMPIRICAL INVESTIGATION

This chapter will focus on the sample, the psychometric battery used, the administration and scoring of the psychometric battery, the statistical analyses and, finally, the formulation of the research hypothesis. The chapter will conclude with a summary.

#### 4.1 THE SAMPLE

The sample consists of 100 participants from the technical division of the Department of Defence. A convenience sample was drawn from populations in Cape Town and Pretoria, with a respective distribution of 60% and 40% of the total sample. All participants belong to the technical field, covering a wide array of occupations. The sample can be described in terms of the biographical features explained below.

##### 4.1.1 Descriptive Statistics of Biographical Data

From Table 4.1 (page 71) it is evident that the majority of the participants (77%) are between 25 and 35 years of age, while 73% register between 2 and 20 years of service, of which the majority (28%) fall between 2 to 5 years. The sample consists mostly of males (94%). Regarding qualifications, 75% have completed Standard 8 (Grade 10), while 49% have no qualifications in other fields of interest. The rank of sergeant (36%) is held by most, 74% of respondents are between 0 - 3 years in their present rank. Transfers between bases/units took place between one to three times in 68% of cases, while 55% have never been transferred between squadrons. The respondent sample indicates a balanced alignment (48% positive and 52% negative) between career- and organisational goals. More than half (56%) have no operational combat experience. As regarding employment status, the majority (47%) of members are awaiting either Employer Initiated Packages or staffing in new posts. Most

respondents (82%) have never attended a course in stress management, while those who did, attended such courses more than two years ago. Half the respondents (51%) have no dependants, while 23% have two dependants.

**Table 4.1: Frequency distribution of biographical characteristics**

Biographical Category	Respondents	Biographical Category	Respondents
<b>Age</b>		<b>Career Alignment</b>	
25 years and younger	39	Yes	48
Between 26 and 35 years of age	38	No	52
Between 36 and 50 years of age	23	<b>Combat Experience</b>	
<b>Years of Service</b>		Conventional	1
Less than 2	15	Bush War	12
Between 2 and 5	28	Live Simulation	3
Between 6 and 10	20	Operational Training	28
Between 11 and 20	25	None	56
Between 21 and 30	12	<b>Employment Status</b>	
<b>Gender</b>		Invited to apply elsewhere	11
Male	96	Alternative offers made	21
Female	4	Planning to resign	14
<b>Qualifications</b>		Awaiting EIP or staffing	47
Lower than Std 8/Grade 10	10	<b>Other Interests</b>	
Standard 8 or Grade 10	75	Yes	39
Standard 10 or Grade 12	14	No	49
N6 or S6	1	Busy	11
<b>Present Rank</b>		<b>Stress Management Courses</b>	
Lance Corporal	13	None	82
Corporal	19	One	14
Sergeant	36	Two	2
Flight Sergeant	18	More than 2	1
Warrant Officer 2	1	<b>How Long Ago</b>	
Warrant Officer 1	8	6 Months ago	5
<b>Years in Rank</b>		1 Year ago	4
Less than one year	40	2 Years ago	2
Between 1 and 3 Years	34	More than 2 years ago	9
Between 3 and 6 years	15	<b>Dependants</b>	
More than 6 years	10	None	51
<b>Transfers between Bases</b>		One	12
None	20	Two	23
Between 1 and 3	68	Three	10
Between 4 and 7	10	Four	2
More than 7	2	<b>Accommodation</b>	
<b>Squadron Transfers</b>		Military	41
None	55	State	0
1 - 3 Transfers	40	Private tenant	14
4 - 7 Transfers	4	Private-owner	45
More than 7 Transfers	1		

There is an equal distribution of military housing (41%) and private owned (45%) accommodation.

## **4.2 THE PSYCHOMETRIC BATTERY**

The psychometric battery consists of the Myers and Briggs Type Indicator (Myers, 1980) the Orientation to Life Questionnaire (Antonovsky, 1970) and the Self-control schedule (Rosenbaum, 1980). A description of the three measuring instruments will follow.

### **4.2.1 The Myers and Briggs Type Indicator**

The Myers and Briggs Type Indicator (MBTI) (Form G, self-scored) is a 94-item self-report questionnaire for identifying differences between people. It is aimed at making the psychological differences between people understandable and useful. The essence of the theory is that variation in behaviour is actually orderly and consistent on account of basic differences (Myers & McCaulley, 1985). It contains items assessing four preference scales of an individual's orientation towards multifaceted aspects of personality. Personality is assessed as energy systems with interacting processes. It has been tested and applied in various countries, among which South Africa, Israel, Belgium, Finland and Germany (Levert et al, 2000).

#### **4.2.1.1 *Description of the Myers and Briggs Type Indicator***

The MBTI indicates forced choices between poles of the preference at issue, scored for each index. Choices reflect the two poles of the same Jungian preference. Different versions of the instrument exist. Form J consists of 290 items, form K of 131 items, and Form M, MBTI for children and Form F of 166 items. Form G consists of both a short 94-item scale (used in this study) and a longer 126-item MBTI-scale, with acceptable predictive validity being reported for all versions (Quenk, 1993). The 16 MBTI types describe a dynamic theory. Each preference is defined in order to obtain a full picture of psychological type through the combination of the four preferences (Myers, 1998).

#### 4.2.1.2 *Development of the Myers and Briggs Type Indicator*

Studying the long history of attempts to classify humankind according to different personality types, Jung formulated his typology theory. It is based on a wide range of perspectives as well as the belief that the way normality is perceived, must be understood. Jung's model is concerned with psychic energy and the habitual or preferred way in which a person orientates him or herself in the world. Briggs and Myers found Jung's theory interesting enough to conduct further research on it, and created the Myers and Briggs Type Indicator (MBTI). Their theory envisioned growth through an understanding and appreciation of individual differences in healthy personality, to create harmony and productivity among diverse groups through constructive use of the instrument (Van Rooyen et al, 1999).

#### 4.2.1.3 *Scales of the Myers and Briggs Type Indicator*

The MBTI is subdivided into four components, which describe the preference scales of extraversion/introversion, sensing/intuition, thinking/feeling and judging/perceiving. Factor analysis indicated that the four constructs are not empirically separated.

- Extraversion/introversion is based on the way energy is sourced from the environment. Energy is drawn from the environment and either flows out to objects and people, or is consolidated within one's position.
- Sensing/intuition describes the kind of perception preferred when one wishes to perceive observable facts or use less obvious intuition.
- Thinking/ feeling describes the two contrasting kinds of judgement trusted when a decision has to be made.
- Judging/ perceiving describes identifiable attitudes and behaviours directed at the outside or extraverted world (Myers & McCaulley, 1985).

#### 4.2.1.4 *Administration of the Myers and Briggs Type Indicator*

Results of the Myers and Briggs Type Indicator (MBTI) are designed with the respondent in mind. It must be ensured that participation is voluntary and arrangements to ensure confidentiality must be confirmed. An atmosphere in which each individual can respond freely must be created. The self-administering instructions on the cover of the question booklets and response sheets must be followed, and must be read aloud to the group. The numbers appearing on the response sheets and the response booklet must be identified and matched. As the questions of the TF column carry different weights as a function of gender, the respondents' attention must be focused on the applicable scores. Only one answer is to be given per question, except for Item 17, which involves a choice between three options. No time limit is prescribed, but unusually slow respondents could be encouraged to work faster and not to study items at length. Group members are not allowed to discuss the items. Omissions are allowed if respondents do not understand the choice, or if the question lies beyond the respondent's experience. The word "indicator" should be used instead of "test" when referring to the instrument. The frame of reference aimed at in respondents is an ambiance in which one functions naturally, smoothly and effortlessly (Myers & McCaulley, 1985).

#### 4.2.1.5 *Scoring and Interpretation of the Myers and Briggs Type Indicator*

Scoring is done by means of respective vertical preference columns, adding the values of respondent answers that appear as an X in each box on the answer sheet. Responses for questions are weighted 0, 1 or 2 points, next to the marks. The appropriate male or female score must be used on the thinking/feeling (T/F) scale. The total number of points is indicated in the spaces at the bottom of the answer sheet. The highest of the two scores appearing in the Total column indicates the strength of the preferred alternative. The letter associated with the highest of the two scores indicates the direction of the preference. The four-letter code resulting from these points is regarded as a person's personality type.



#### 4.2.1.6 *Validity and Reliability of the Myers and Briggs Type Indicator*

The Myers and Briggs Type Indicator (MBTI) is used for indicating preference. The four continuum scales compare favourably with well-established and respected trait-based instruments (Hammer, 1996). It has been subjected to an item analysis and its reliability is higher than 0,84 and 0,86 in terms of internal consistency. It has a meaningful correlation of 0,76 in terms of temporal stability, which confirms the questionnaire's construct validity. On Form G, reliability remains stable up to twenty-five omissions. Reliability scores are higher in more intelligent groups. Test-retest reliability shows consistency over time (Myers & McCaulley, 1985).

It has significant convergent, discriminant and predictive validity with regard to best-fit assessments, scores on other personality measuring instruments, occupational preference/choice and independent behavioural observation. There is very strong support for the validity of the predicted four-factor structure of the MBTI. Construct validity is supported by a factor-analysis. Substantial convergent validity exists between the MBTI and the Five-factor model (Hammer, 1993).

#### 4.2.2 **The Orientation to Life Questionnaire**

The Orientation to Life Questionnaire is a 29-item self-report questionnaire which measures the construct of sense of coherence (SOC). It contains items measuring manageability, meaningfulness and comprehensibility, in an effort to assess an individual's global orientation towards coping. Its semantic differential scale has been tested and applied in various countries, among which South Africa, Israel and Japan (Antonovsky, 1993; Frankenhoff, 1998; Nakano, 1995).

In order to measure sense of coherence empirically, Antonovsky (1987) designed a closed-scale measurement tool, called the 'Orientation to Life' scale, which takes the form of a 29-item questionnaire. A 13-item shortened scale followed. The OLQ scale is consistently feasible, reliable and valid across cultures, social class, ethnic group, age and gender (Antonovsky, 1996).

#### 4.2.2.1 *Description of the Orientation to Life Questionnaire*

The OLQ uses a seven-point semantic differential Likert scale. A 1 and a 7 represent extremes, while a 4 indicates that both statements apply to an equal extent on the continuum. A short 13-item and a longer 29-item (used in this study) OLQ-scale exist, with acceptable predictive validity being reported for both versions.

#### 4.2.2.2 *Development of the Orientation to Life Questionnaire*

Observations of holocaust survivors lead Antonovsky to question why it was possible to live a normal life after such stressful life experiences (Poppius, Tenkanen, Kalimo & Heinsalmi, 1999). As a result of Antonovsky's research in the field of mental health, the question arose whether a strengthened sense of coherence could be a major contributor to an orientation towards health. This required a measuring tool which could empirically test sense of coherence. The closed-scale Orientation to Life Questionnaire was the result (Antonovsky, 1996).

#### 4.2.2.3 *Scales of the Orientation to Life Questionnaire*

The OLQ is subdivided into three components, namely comprehensibility, manageability and meaningfulness. The scale was not meant to factor into these constructs. A factor analysis indicated that the three constructs cannot be separated empirically. In addition to measuring one of the three constructs of SOC, the questions respectively measure the elements of modality, source, demand and time.

- Comprehensibility measures the extent to which a person perceives the world as being ordered, predictable and clearly observable. It is measured by the following 11 items: 1, 3, 5, 10, 12, 15, 17, 19, 21, 24, 26.
- Manageability measures the extent to which a person perceives the world as being manageable. It is measured by 10 items, namely 2, 6, 9, 13, 18, 20, 23, 25, 27 and 29.

- Meaningfulness measures the extent to which a person perceives the world as being meaningful. It involves items 4, 7, 8, 11, 14, 16, 22 and 28.

#### 4.2.2.4 *Administration of the Orientation to Life Questionnaire*

Participation in the Orientation to Life Questionnaire (OLQ) is voluntary and results are confidential. The environment must support individual freedom of response. The instructions to be followed appear on the cover of the questionnaire and must be read to the respondents prior to commencement with the content. The individual's response to 29 items is selected on a seven-point Likert scale, with two anchoring phrases indicated on the questionnaire. Only one answer should be given per question and no omissions are allowed. There is no time limit involved and group members are not allowed to discuss the items (Antonovsky, 1996; Sammallahhti et al, 1996).

#### 4.2.2.5 *Scoring and Interpretation of the Orientation to Life Questionnaire*

Scoring is done by adding the individual sub-scale results. Values for Items 1, 4, 5, 6, 7, 11, 13, 14, 16, 20, 23, 25, and 27 have to be reversed. The total score is a summation of the three construct scores. This total score represents a comprehensive indication of the person's Sense of Coherence. Sub-scale scores can be used individually, but as the OLQ was developed to measure global orientation, this study will focus on total scores. Low scores on both a sub-scale and the total indicate a low degree of sense of coherence. High scores indicate a high degree of sense of coherence (Antonovsky 1987, 1993; Barnard 2001).

#### 4.2.2.6 *Validity and Reliability of the Orientation to Life Questionnaire*

The validity (internal consequence) of the three scales of SOC varies between 0,83 and 0,93 according to respective ethnic groups, languages and cultures. The construct validity of the SOC varies between 0,38 and 0,72 (Antonovsky, 1987). The high internal consistency which Antonovsky reports for the range mentioned, is supported by Kalimo and Vuori (1990). Antonovsky (1993) summarises the validity and reliability results of 29 researchers to indicate the average alpha coefficients to

be between 0,85 and 0,91. The consistently high internal validity was found across different sample populations. Test-retest reliability varies between 0,41 and 0,97. The systematic procedure of scale construction is based on a high level of content, face and criterium validity, as proven by various research efforts (Antonovsky, 1993). Sammallahti et al (1996) confirm a reliability of 0,93 for the sense of coherence.

### **4.2.3 The Self-control Schedule**

Individuals differ in the extent to which they are able and willing to self-regulate internal responses. Rosenbaum (1980) indicates that learned resourcefulness is not a personality trait, but a personality repertoire, that is a set of complex behaviours, cognition and affects in constant interaction with the person's physical and social environment, which provides the basis for further learning (Rosenbaum, 1980; Strümpfer, 1990).

#### *4.2.3.1 Description of the Self-control Schedule*

The self-control schedule is a 36-item self-report instrument which assesses individual tendencies to apply self-control methods or strategies for solving behavioural problems (Rosenbaum, 1990). It assesses learned resourcefulness (LR). Its semantic differential scale has been tested and applied in various countries, among which South Africa, Israel, Japan and the USA (Edwards & Riordon, 1993; Nakano, 1995; Richards, 1985; Rosenbaum, 1990). The learned resourcefulness questionnaire assesses self-control methods for solving behavioural problems on a six-point Likert scale, indicating the extent to which an item is characteristic of a subject. A minus three (-3) and a three (+3) represent extremes, while a minus one (-1), or a one (1) indicates close proximity to the middle position on the continuum.

#### *4.2.3.2 Development of the Self-control Schedule*

Research was initially conducted on the role of cognitive and affective factors in behavioural therapy. The reason why therapeutic treatment was not more effective in treatment generalisation and maintenance was investigated. This resulted in the emergence of a cognitive-behavioural approach which lead to integrative treatment

techniques, among which stress inoculation training (SIT). These interventions were designed to develop flexible coping repertoires. Learned helplessness translated into learned resourcefulness through psychological immunisation. It appeared that learned resourcefulness could both be acquired by and taught to individuals. Rosenbaum (1990) developed the 36-item self-control scale to determine the degree of an individual's learned resourcefulness. His contribution explained psychological concepts relating to individual ability.

#### 4.2.3.3 *Scales of the Self-control Schedule*

The scale was not meant to factor into constructs. It contains items which cover the following areas (Rosenbaum, 1990):

- Cognitions and self-instructions for coping with emotional and physiological responses.
- Application of problem-solving strategies.
- Ability to delay immediate gratification.
- General belief in one's ability to self-regulate internal events.

In the factor analyses conducted by Rude (1989) "thought management" was found to be a major factor accounting for nearly half of the total variance, corresponding to the first content area (cognition and self-instruction). She labelled other factors, namely helplessness, systematic and planful approach, external control of habits and impulsivity. In the Gruber and Wildman (1987) study three factors emerged:

- Problem-focused coping, corresponding to skills needed for reformative self-control.
- Mood and pain control, corresponding to skills needed for redressive self-control.

- Externality, corresponding negatively to the person's general belief in his/her ability to apply self-control.

#### 4.2.3.4 *Administration of the Self-control Schedule*

It is indicated to respondents that the Self-control Schedule (SCS) is a self-report instrument which was developed to assess the tendencies of individuals to apply self-management methods in solving common behavioural problems. The SCS can be taken down individually or in groups. Respondents are requested to indicate the extent to which each of the 36 items is characteristic of them, on a six-point Likert scale. Respondents read the instructions by themselves and answer the items by indicating the point which is most descriptive of themselves, considering the respective description of the two poles (Richards, 1985).

#### 4.2.3.5 *Scoring and Interpretation of the Self-control Schedule*

Scoring is done by adding up individual item results. Values indicated for Items 4, 6, 8, 9, 14, 16, 18, 19, 21, 29 and 35 have to be reversed. The total score could range from -108 to +108. For normal populations the score is usually +25, with a standard deviation of 20. This total score represents an indication of the person's degree of self-control. The median score is used as cutting point to determine a low level of resourcefulness (LR) or a high level of resourcefulness (HR). Significant individual differences can be expected to occur within populations (Rosenbaum, 1990).

#### 4.2.3.6 *Validity and Reliability of the Self-control Schedule*

Validity and reliability of the learned resourcefulness questionnaire were well-established in the Hebrew, English and Japanese versions. Rosenbaum (1980a) reports a low, but statistically significant correlation with, among others, the G-Factor (Self-control") of Cattell's 16 Personality Factors. Rosenbaum (1980a) reports a test-retest reliability of 0,86 ( $p < 0,01$ ) and internal consistency reliabilities ranging from 0,78 to 0,84 for the SCS. Construct validity is confirmed in several studies (Richards, 1985). Edwards and Riordon (1994) found that, in support of two previous South African studies, Black South Africans obtained markedly higher SCS scores than

Whites. They reported a concurrent reliability of 0,82. Richards (1985) found a reliability of 0,70 in a continued validation of the SCS, as well as a high construct validity.

### **4.3 ADMINISTRATION OF THE PSYCHOMETRIC BATTERY**

Participants in the sample were approached by their respective managers, who indicated the reasons for the research to the group. Volunteers were assembled in two respective groups on predetermined dates. A lecture was presented by the administrator, who indicated the reasons and importance of the research. Each of the components was briefly explained, followed by an explanation of the process applicable to the completion of the questionnaires. Voluntarism was confirmed and individuals were granted an opportunity to withdraw. Each participant was handed a pencil and a question booklet (see Appendix A) containing instructions, the OLQ, the SCS and the MBTI. On completion, immediate feedback was given to those individuals who were interested. Individuals who requested feedback were invited to indicate where they would prefer to receive such information.

### **4.4 SCORING OF THE PSYCHOMETRIC BATTERY**

The MBTI was scored manually by means of the scoring key indicated on the inside of Form G (self-scorable). The SOC and SCS were also scored manually.

### **4.5 STATISTICAL PROCESSING OF DATA**

Statistical and data processing is done by means of the SPSS computer package. The following statistical techniques are applied to analyse the gathered data:

#### **4.5.1 Internal Consistency**

Cronbach alpha coefficients are used in indicating the reliability of scales applicable to this research. Reliability analysis of the alpha coefficient indicates the significance level used for rejecting the null hypothesis (Bless & Kathuria, 1993). Commonly used alpha values are 0,01 or 0,05 or 0,10, while alpha coefficients between 0,50 and 0,60

are found to be sufficient for basic research. The ideal is 0,80 and higher (Huysamen, 1990). Coefficients are significant if the alpha coefficient is indicated to be 0,68 and higher, as this represents one standard deviation above the mean (Wolfaardt, Botha, De Beer, Viviers, Vosloo & Bekwa, 1999). It must be borne in mind that the objective of this research is not to validate any of the instruments used. The probability of rejecting the null hypothesis, when in fact the null hypothesis is true, is investigated (Bless & Kathuria, 1993).

#### **4.5.2 Descriptive Statistics**

The mean, minimum and maximum values, range, standard deviation, variance, skewness and kurtosis are used in determining results. Analysis of variance (ANOVA) is used for testing whether several means are equal.

Kurtosis indicates a flat or steep gradient in the distribution of data. The closer to zero, the more normal the distribution (Steyn, Smit & Du Toit, 1987).

Tukey's *post hoc* test is used for pairing each group with another group to test means for differences (Hair, Anderson, Tatham & Black, 1998).

#### **4.5.3 Correlation Analysis**

Correlation analysis attempts to identify patterns of variation common to a dependent variable and an independent variable (when both scales are continuous). Results indicate the strength of a shared pattern of change and whether it is a positive or a negative pattern (Boyd et al, 1987). The correlation coefficient is a measure of the degree of covariation between two variables. Unless a perfect correlation is shown ( $r=+/-1$ ), the effect of a variable in the variation of the other must be assessed. Significance determines rejection or acceptance of the null hypothesis. It indicates what percentage of the total variance of one variable is explained by the variance of the other (If  $r^2=1$ , then behaviour X is 100 percent determined by the behaviour of y) (Bless & Kathuria, 1993). A correlation between a personality type and a team role is considered statistically significant for  $p<0.05$  and  $p<0.01$ .



#### 4.5.3.1 *Pearson Product Moment Correlation*

The Pearson product moment correlation provides an indication of the type and degree of relationship between two variables (Bless & Kathuria, 1993). Correlations were respectively drawn between the MBTI continual scores and the result of sense of coherence and learned resourcefulness. The measurement indicates the associated direction and strength of a linear relationship between two variables, where -1,00 is indicative of an inverse relationship, +1,00 of a positive correlation and 0,00 of no relationship (Bless & Kathuria, 1993). For the purposes of this research, it is accepted that a significant correlation would be indicated by a result of 0,6 and higher.

#### 4.5.4 **Regression**

Regression analysis represents a more objective estimation of the linear relationship between a dependent variable and one or more independent variables or covariates. In an attempt to measure the discrepancy between the ideal and the observed, it aims at predicting the average value of one variable in terms of a certain value of the other variable. Strength is expressed by  $r$  (coefficient of correlation) (Bless & Kathuria, 1993). It gives an indication of how well the regression analysis explains the total variance, observed in the dependant variable. R square (the coefficient of determination) gives an indication of the extent to which the variance in the dependant variable, about its mean, is explained by the regression equation. R square = 1,00 indicates that 100 percent of the total variance is explained in the dependant variable, about its mean. R square approximating zero indicates that the regression line does not explain any of the variance observed in  $y$ . R square values of 0,25 or less indicate that the regression line is of little use in explaining variance (Boyd et al, 1987).

Regression analysis is the prediction of a described relationship, without explaining it. It aims at predicting the average value of one variable in terms of a certain value of the other variable. It relies on the assumption that the relationship between two variables is a systemic one that can be approximated mathematically - expressing the law underlying that relationship. The strength of this relationship is described by

the coefficient of correlation (Bless & Kathuria, 1993). Such a relationship is at its best a linear one, where values are positioned as a distribution around a straight line, so that a criterion must be used to determine the best fit of values with a regression line (Bless & Kathuria, 1993; Steffens, 1992). Multicollinearity is analysed to determine the degree to which one independent variable is explained by another. A large variance inflation factor (VIF) indicates low collinearity (Hair et al, 1998).

#### **4.6 FORMULATION OF THE RESEARCH HYPOTHESIS**

It is hypothesised that there will be a relationship will exist between the Myers and Briggs type indicator (MBTI), sense of coherence (SOC) as indicated by the OLQ and learned resourcefulness (LR) as indicated by the SCS. It is further hypothesised that the MBTI can be used for predicting SOC and LR.

#### **4.7 CHAPTER SUMMARY**

The empirical investigation applicable to this study was discussed in this chapter. The sample, the psychometric battery, the administration and scoring of the psychometric battery, the statistical processing and finally the formulation of the research hypothesis, were dealt with. The results of the empirical study will be discussed in Chapter 5.

## CHAPTER 5

### RESULTS OF THE EMPIRICAL INVESTIGATION

Chapter 5 contains the reporting and interpretation of the results of the empirical study. These results are subsequently reported under respective frequency distributions, descriptive statistics, alpha coefficients, correlation analysis and a regression analysis between personality type, sense of coherence (SOC) and learned resourcefulness (LR). An alpha of 0,05 is used in this research.

#### 5.1 RELIABILITY OF THE INSTRUMENTS

Cronbach's alpha coefficients for the MBTI are not reported, as calculations relating to the bimodal nature of the continuums fall beyond the scope of this research. Myers and McCaulley (1985) found a high internal reliability for the MBTI by applying Phi coefficients and Tetrachronic correlation, corrected by the Spearman-Brown prophecy formula. Reliability coefficients for sense of coherence and learned resourcefulness are displayed in Table 5.1.

**Table 5.1: Reliability Coefficients**

Coefficient	SOC	LR
Cronbach Alpha	0,8817	0,8475

As can be seen from Table 5.1 the alpha coefficients for sense of coherence and learned resourcefulness applicable to this research are highly acceptable, indicating a high internal reliability in respect of measuring instruments applied in this study.

#### 5.2 DESCRIPTIVE STATISTICS

The descriptive statistics will focus on the mean, standard deviation, variance, skewness and kurtosis.

### 5.2.1 Descriptive Statistics with relation to Personality Type, Sense of Coherence and Learned Resourcefulness

From Table 5.2 it can be seen that, on all four continuums of the MBTI (EI, SN, TF & JP), the means are indicated as being below 100. Since the means could fall either above or below 100 as balancing point of continuums, this sample indicates a slight tendency towards a mean preference for extraversion (E), sensing (S), thinking (T) and judging (J). The mean for sense of coherence (131,58) falls within the accepted normal distribution, positioned between 120 and 150. The learned resourcefulness score associated with normal populations is usually +25, with a standard deviation of 20 (Rosenbaum, 1990). Results indicate a learned resourcefulness mean of +28,86 and a standard deviation of 24,49.

**Table 5.2: Descriptive Statistics with relation to Personality Type, Sense of Coherence and Learned Resourcefulness**

	Mean	Standard Deviation	Variance	Skewness	z Skew	Kurtosis	z Kurt	
SOC	131,58	23.30	542.913	0.163	0.241	0.883	0.478	
LR	28.86	24.49	599.596	-0.056	0.241	-0.685	0.478	
Personality	EI	98.28	17.74	314.850	0.230	0.241	-1.717*	0.478
	SN	86.47	13.46	181.161	1.534*	0.241	1.019*	0.478
	TF	88.71	13.53	182.976	0.989*	0.241	-0.274	0.478
	JP	99.09	20.41	416.648	0.095	0.241	-1.804*	0.478

Note. N = 100

\* Significant on a 5% level

SOC = sense of coherence

LR = learned resourcefulness

EI = extraversion/introversion

SN = sensing/intuition

TF = thinking/feeling

JP = judging/perceiving

Table 5.2 indicates that the standard deviation falls within the acceptable limits of skewness. As many tests require normality, skewness and kurtosis are indicated to confirm whether results obtained are normally distributed. To determine if this is the case, the null hypothesis requires that data represent a normal distribution at a 5% level of significance. As a normal distribution has a skewness of 0, the positive skewness indicated for SN (being bigger than 1) with a long right tail, indicates an assymmetric distribution. This is an indication that the weight of the distribution leans

towards sensing. A negative skewness is indicated (a long left tail), which confirms the interpretation that the weight of the distribution leans respectively towards the extraversion, sensing, thinking and judging side of the MBTI personality continuums. The statistical skewness value (z) indicates normal distributions in the cases of SOC, LR, EI and JP at a 5% level of significance.

Kurtosis measures the extent to which observations cluster around a central point. For a normal distribution, kurtosis would be 0. Negative kurtosis indicates that observations are less clustered and have shorter tails, which results in a non-peaked, widely distributed platykurtic graph in all cases, except in the case of sense of coherence, where the gradient is steep. The statistical values (z) for kurtosis indicate normal distributions in the cases of SOC, LR and TF at a 5% level of significance.

Outliers were investigated for the potential influence of extreme values of distribution on the analysis. It was found that in the case of SOC, two outliers apply to the EI, SN and JP continuums and one to the TF. In the case of LR no valid cases were found. Against the background of the relatively small data set, outliers are included in spite of the sensitivity of analysis of variance. For the purpose of this study outliers are regarded as extraordinary observations which do not bring the representivity of the population at issue. No further explanation is thus offered and data are retained as valid observations.

### **5.2.2 Frequency Distribution**

Tables 5.3 and 5.4 report the frequency distribution of the sample. The discussion of frequency distribution will be based on the information supplied in these tables.

From Table 5.3 it is clear that, in terms of individual personality types, Thinking types (78%) as well Sensing types (84%) were dominant. Extraverts (56%) and Judging types (52%) seem to be balanced across the sample group. The majority (66%) of the sample clusters in the ST (sensing-thinking) personality type category, followed by a clustering in the SF (sensing-feeling: 18%) and NT (intuition-thinking:11%) personality type categories. The NF (intuition-feeling) personality type category was not strongly represented (5%).

**Table 5.3: Frequency Distribution of Personality Type**

	N	%		N	%
E	56	56	TJ	44	44
I	44	44	TP	33	33
S	84	84	FP	15	15
N	16	16	FJ	8	8
T	78	78	ET	44	44
F	22	22	EF	12	12
J	52	52	IF	11	11
P	47	47	IT	33	33

Note. N=100. Table 5.3 is supplementary to Table 5.2.

The highest frequency of preferred personality type falls within the ESTJ type, with the second highest the ISTJ type. The personality type with the lowest frequency within the sample is the ENFJ (0%). The individual preference with the lowest frequency is Intuition (16%), which represents a small component of the sample group (see Table 5.4).

With reference to previous research conducted by Botha (1994), 92,8% is reported in the case of the thinking dimension, which supports the findings of Myers and McCaulley (1985). Research by Hardijzer (2000) reports that the highest combined style is TJ (59,3%), while Coetzee (1996) reports an ST preference of 71,2%. The results of this research indicate a 66% preference towards the ST style. The results obtained in this study are therefore in accordance with other research results obtained in South Africa.

### **5.2.3 Sense of Coherence and Learned Resourcefulness against the Background of Personality Elements**

Table 5.4 gives an indication of the descriptive statistics representative of preferred personality types against the background of temperament (Keirsey & Bates, 1984), quadrant, function, attitude and Myers and Briggs types (MBTI), which are referred to as personality elements in this study.

**Table 5.4: Descriptive Statistics with relation to Temperament, Quadrant, Attitude, Function and Type**

		n	%	Mean		Standard deviation	
				SOC	LR	SOC	LR
Temperament	SP	38	38	124,34	32,34	22,67	25,78
	SJ	46	46	138,00	27,48	20,93	25,90
	NT	11	11	130,70	27,55	18,02	19,52
	NF	5	5	128,80	26,80	36,78	20,31
Quadrant	IN	8	8	124,25	26,63	14,10	21,86
	EN	8	8	135,13	28,00	31,90	17,42
	ES	48	48	136,60	31,00	19,90	24,78
	IS	36	36	126,00	28,06	24,60	23,62
Function	ST	66	66	131,30	28,92	23,10	25,62
	SF	18	18	133,90	30,00	21,50	23,22
	NF	5	5	128,00	26,20	36,90	20,31
	NT	11	11	131,20	27,82	17,20	19,51
Attitude	IJ	23	23	134,50	20,35	22,50	21,99
	IP	22	22	117,20	33,60	21,30	25,20
	EP	25	25	130,70	30,85	25,00	23,10
	EJ	30	30	140,20	30,03	17,70	24,58
MBTI Personality Type	ISTJ	17	17	136,60	22,35	23,90	21,29
	ISFJ	3	3	123,00	6,00	20,50	28,18
	INFJ	1	1	139,00	10,00	0,00	0,00
	INTJ	2	2	131,50	30,00	11,50	5,00
	ISTP	10	10	108,60	34,70	21,50	29,91
	ISFP	6	6	129,20	30,83	19,60	19,70
	INFP	1	1	124,00	57,00	0,00	0,00
	INTP	4	4	119,00	21,50	14,90	24,72
	ESTP	16	16	126,40	28,63	16,90	27,05
	ESFP	6	6	140,30	34,67	25,10	21,62
	ENFP	2	2	128,50	19,50	57,50	19,50
	ENTP	3	3	138,00	31,00	10,70	4,32
	ESTJ	23	23	140,70	31,48	18,90	24,46
	ESFJ	3	3	141,30	32,67	5,40	18,41
	ENFJ	0	0	-	-	-	-
	ENTJ	3	3	136,70	30,67	18,80	21,75

Note. N = 100

### 5.2.3.1 Temperament Type

From Table 5.4 it is evident that the temperament with the highest mean sense of coherence (SOC) is the SJ preference style, and in the case of learned resourcefulness (LR) the SP preference style. The highest mean for sense of coherence and learned resourcefulness is therefore associated with a realistic,

deciding, outward judgement of good or bad, while maintaining an inward focus on the facts applicable to the immediate circumstances. Problems are solved through reliance on past experience and traditions, which indicates a resistance to change (Myers & McCaulley, 1985). The dependent variables of SOC and LR should not be confused, as their findings are reported independently, while this research does not aim at determining the existence of a relationship between them. As regards most respondents in the NF category (SOC) the highest standard deviation (36,78) is indicated for this preference style while a standard deviation of 20 is accepted for a normal population. The standard deviation for SJ (LR) is indicated as 25,90.

#### 5.2.3.2 *Quadrant*

Referring to Table 5.4, the quadrant with the highest mean for both sense of coherence (SOC) and learned resourcefulness (LR) is the ES preference style. The IN style has the lowest preference. This indicates that the highest degree of sense of coherence and learned resourcefulness is associated with action-oriented realistic doers, who combine extraversion with sensing to make practical, obvious useful applications possible (Myers & McCaulley, 1985).

#### 5.2.3.3 *Functions*

Table 5.4 indicates that the function with the highest mean for both sense of coherence (SOC) and learned resourcefulness (LR) is the SF preference category. When comparing the average means for both SOC and LR, the sequence of the preference order is SF (first), then ST (second). This indicates that a high degree of sense of coherence (SOC) and learned resourcefulness (LR) is associated with a focus on facts, and a preference for sensing along with either thinking or feeling. Sympathy and friendliness are dominant and a practical and matter-of-fact approach is followed, while applying practical help, services and technical skills are applied when dealing with facts and objects. Situations are handled mostly through impersonal analysis, but personal warmth is also exuded (Myers & McCaulley, 1985). As only four respondents fall in this category, the highest standard deviation is indicated for the NF preference style (SOC) as 26,6, and the ST preference style (LR), as 25,62.



#### 5.2.3.4 *Attitudes*

The attitude with the highest mean for sense of coherence (SOC) is the EJ preference style, and the IP preference style for learned resourcefulness (LR), as indicated in Table 5.4. It is evident that these results seem incongruous, as the respective results oppose each other.

#### 5.2.3.5 *MBTI Personality Type*

From Table 5.4 it is evident that the MBTI personality type with the highest mean for sense of coherence (SOC) is ESFJ (n=3). In the case of learned resourcefulness (LR) the highest mean is indicated for the ISTP preference style (n=10). The second highest preference, in both the case of SOC and LR, is for ESFP. Both the ESFJ and the ESFP types contribute to their environment through a variety of interests, reliance on facts and also warmth and sympathy (Myers & McCaulley, 1985).

The ESFJ type is associated with being organised, warm-hearted, talkative, popular and conscientious. They are effective co-operators and active committee members. Such individuals have a need to live in (and create) harmony with others. They are always doing good deeds and perform at their best when receiving encouragement and praise. They are mainly interested in aspects which directly and visibly affect people's lives (Myers & McCaulley, 1985). The ESFP type is associated with individuals who are outgoing, accepting, adaptable, friendly, who enjoy everything and provide more fun for others through their enjoyment. They prefer action, make things happen, know what goes on and join eagerly. This personality type remembers facts easier than mastering theories and performs best in situations which require common sense and an ability to work with people (Myers & McCaulley, 1985). The ISTP style has the lowest indicated preference in the case of SOC. No mean or standard deviation was recorded for ENFJ, as there was no respondent who indicated this preference style. In the cases of INFJ and INFP there were only one case per type, which resulted in a standard deviation indicated as 0,0 in the respective cases.

In spite of the above information it is still not clear whether these results indicate a significant difference or similarity between personality and sense of coherence (SOC) and learned resourcefulness (LR) respectively. For this reason the analysis of variance has to be investigated for personality and sense of coherence and learned resourcefulness. Personality will be discussed on the basis of MBTI type, temperament, quadrant, function and attitude.

#### 5.2.4 Analysis of Variance for MBTI, Temperament, Quadrant, Function, Attitude, Sense of Coherence and Learned Resourcefulness

Analysis of variance was used to test whether several means are equal. In determining whether the differences between means of respective results are significant or not, both Table 5.5 and 5.6 apply to Table 5.4.

From Table 5.5 it is clear that only in the cases of temperament and attitude statistically significant F-ratios were yielded - with respective significance levels of 10% and 5%. These results do not clarify the specific difference existing among the means; therefore, further analysis is required.

**Table 5.5: Analysis of Variance of SOC according to Personality Type**

Independent Factor	Source of Variation	df	Sum of Squares	Mean Squares	F	P
MBTI	Between Groups	14	10000.375	714.312	1.388	0.177
	Within Groups	85	43747.985	514.682		
	Total	99	53748.360			
Temperament	Between Groups	3	3957.458	1319.153	2.543	0.061*
	Within Groups	96	49790.902	518.655		
	Total	99	53748.360			
Quadrant	Between Groups	3	2264.617	754.872	1.408	0.245
	Within Groups	96	51483.743	536.289		
	Total	99	53748.360			
Function	Between Groups	3	167.416	55.805	0.100	0.960
	Within Groups	96	53580.944	558.135		
	Total	99	53748.360			
Attitude	Between Groups	3	6151.208	2050.403	4.136	0.008**
	Within Groups	96	47597.152	495.804		
	Total	99	53748.360			

**Note.** \* Significance at a 10% level of significance.

\*\* Significance at a 5% level of significance.

To determine differences among the means, Tukey's *post hoc* test was run after the experiment was conducted. Each group was paired with every other group and their means tested for differences with Tukey's (post hoc) honestly significant difference (HSD) multiple comparison technique. The group sizes are unequal. Type I error levels are not guaranteed ( $p > 0.001$ ). It is possible to reject the null hypothesis - ie, that there is a difference between the respective means of SOC and personality variables. The alternative hypothesis indicates that at least two of the reported means differ.

With reference to Table 5.5 *post hoc* tests could not be performed for the MBTI ( $F=1,388$ ), because one group has fewer than two cases (refer to INFJ, INFP and ENFJ indicated in Table 5.2). No significance was found in the quadrants and functions. To confirm the nature of their indicated significance, temperament and attitude had to be investigated further. Tukey's comparison was used for determining if significant results would be yielded. Results are indicated in Table 5.6 and 5.7.

**Table 5.6: Tukey's Multiple Comparison (HSD) between SOC and Temperament**

Temperament	Compared with	Mean Difference (I-J)	Standard Error	Significance
SP	SJ	-13.7014*	4.9924	0,036
	NT	-6.4761	7.7974	0,840
	NF	-4.4579	10.8342	0,976
SJ	SP	13.7014*	4.9924	0,036
	NT	7.2253	7.6437	0,781
	NF	9.2435	10.7241	0,824
NT	SP	6.4761	7.7974	0,840
	SJ	-7.2253	7.6437	0,781
	NF	2.0182	12.2834	0,998
NF	SP	4.4579	10.8342	0,976
	SJ	-9.2435	10.7241	0,824
	NT	-2.0182	12.2834	0,998

Note\* The mean difference is significant at the 5% level.

Table 5.6 indicates that in the case of temperament ( $F=2,543$ ) the mean differences between SP and SJ lie at a 5% level of significance. This indicates that there *is* a significant difference between the respective means of SOC and temperament (SP and SJ); therefore the null hypothesis *can be rejected* in this case.

The specific meaning of these results is that a significant difference exists between sensing perceivers and sensing judges in terms of their sense of coherence. A possible explanation for these results could be that sense of coherence correlates with a preference for judging.

**Table 5.7: Tukey's Multiple Comparison (HSD) between SOC and Attitude**

Attitude	Compared with	Mean Difference	Standard Error	Significance
IJ	IP	15.7964	6.6403	0,088
	EP	4.5583	6.4334	0,893
	EJ	-5.7217	6.1712	0,790
IP	IJ	-15.7964	6.6403	0,088
	EP	-11.2382	6.5091	0,316
	EJ	-21.5182*	6.2501	0,005
EP	IJ	-4.5583	6.4334	0,893
	IP	11.2382	6.5091	0,316
	EJ	-10.2800	6.0298	0,327
EJ	IJ	5.7217	6.1712	0,790
	IP	21.5182*	6.2501	0,005
	EP	10.2800	6.0298	0,327

Note. \* The mean difference is significant at the 5% level.

From Table 5.7 it can be seen that for attitude ( $F=4,136$ ) the mean difference between EJ and IP is significant at a 5% level. This indicates that there *is* a difference between the respective means of SOC and attitude; therefore, the null hypothesis *can be rejected* in this case too.

These results indicate that there is a significant difference between extraverted judging and introverted perceiving, when it comes to sense of coherence. Once again, there is a possibility of some connection with the correlation results obtained in this study (see Table 5.9).

Having addressed sense of coherence (SOC), learned resourcefulness (LR) will be subjected to the same process of analysis.

*Post hoc* tests are not performed in the case of the MBTI, because three personality groups have fewer than two cases. As no significance was found, Tukey's comparison technique was not applied.

**Table 5.8: Analysis of Variance of LR according to Personality**

Independent Factor	Source of Variation	df	Sum of Squares	Mean Squares	F	P
MBTI	Between Groups	14	4904,402	350,314	0,547	0,898
	Within Groups	85	54455,638	640,655		
	Total	99	59360,040			
Temperament	Between Groups	3	752,482	250,827	0,411	0,746
	Within Groups	96	58607,558	610,495		
	Total	99	59360,040			
Quadrant	Between Groups	3	434,526	144,842	0,236	0,871
	Within Groups	96	58925,514	613,807		
	Total	99	59360,040			
Function	Between Groups	3	70,982	23,661	0,038	0,990
	Within Groups	96	59289,058	617,594		
	Total	99	59360,040			
Attitude	Between Groups	3	2327,898	775,966	1,306	0,277
	Within Groups	96	57032,142	594,085		
	Total	99	59360,040			

With reference to Table 5.8 *post hoc* tests could not be performed because at least one group has fewer than two cases (refer to Table 5, MBTI). As regards the temperament, quadrants, functions and attitude, no significance was found. Tukey's comparison was therefore not applied.

To further determine the relationship between personality type and sense of coherence and learned resourcefulness respectively, a correlation analysis are conducted.

### 5.3 CORRELATION ANALYSIS

Tables 5.9 and 5.9 display correlation ( $r$ ) and significance levels between individual personality types and sense of coherence for the total sample. The Pearson product-moment correlation can be applied, as the data are of a continuous nature. A correlation coefficient of +1 indicates a perfect positive correlation; a coefficient of -1 indicates a perfect negative correlation and a correlation of 0 indicates no correlation.

Table 5.9, indicates a low EI position is associated with a preference for Extraversion (E). Therefore, a high level of extraversion (E) is associated with a stronger SOC.

**Table 5.9: Pearson Correlation Matrix:  
Personality Types and Sense of Coherence**

		SOC	EI	SN	TF	JP
SOC	Correlation	1,000				
	Significance	.				
EI	Correlation	-0,222*	1,000			
	Significance	0,026	.			
SN	Correlation	-0,060	0,031	1,000		
	Significance	0,552	0,759	.		
TF	Correlation	0,071	0,038	0,001	1,000	
	Significance	0,482	0,708	0,995	.	
JP	Correlation	-0,323*	-0,070	0,223*	0,199*	1,000
	Significance	0,001	0,490	0,026	0,047	.

**Note.** \* Correlation is significant at the 0.05 level (2-tailed).  
N = 100.

A 5% level of significance is indicated for the correlation of SOC, and EI and JP, where a strong SOC is associated with extraversion (E) and judging (J). It seems that a person with a strong SOC will be activity oriented and outward focused, while planning, structuring and giving order to his/her life. It should be noted that although some of the correlation is statistically significant, the correlation is not very high.

**Table 5.10: Pearson Correlation Matrix:  
Personality Types and Learned Resourcefulness**

		LR	EI	SN	TF	JP
LR	Correlation	1,000				
	Significance	.				
EI	Correlation	-0,075	1,000			
	Significance	0,458	.			
SN	Correlation	-0,009	0,031	1,000		
	Significance	0,925	0,759	.		
TF	Correlation	0,044	0,038	0,001	1,000	
	Significance	0,664	0,708	0,995	.	
JP	Correlation	0,100	-0,070	0,223*	0,199*	1,000
	Significance	0,321	0,490	0,026	0,047	.

**Note:** \* Correlation is significant at the 0.05 level (2-tailed). N=100

The results of Table 5.10 indicate that at a 5% level of significance there exists no relationship between LR and personality. The relationship between JP, SN and TF is internal - pertaining to personality factors only. The discussion of internal personality related continuums falls beyond the scope of this research, and will therefore not be included.

Under the research circumstances applicable to this research, the sample size is insufficient, owing to the subdivision of the sixteen personality types, which results in respondent personality type groupings being smaller than 30. Data are lost in the process of categorization, which results in a loss in robustness of the results.

For this reason, only the results found for continuous data (Pearson correlation) can be relied on to yield significant results.

#### **5.4 REGRESSION ANALYSIS**

To improve on the explanation of the relationship indicated by correlation, an objective assessment of the degree and nature of the relationship between the dependent and independent variables is required. Multiple regression analyses is therefore applied to the data to determine the magnitude of the continuum relationship. Independent variables are considered on the basis of their individual contributions to the variate. The relative importance of the independent variables (continuums) is based on their theoretical relationship with SOC and LR respectively.

Table 5.11 and 5.12 indicate regression analysis, based on results of personality continuums of EI, SN, TF and JP as independent variables, while the SOC is regarded as the dependent variable.

Table 5.11 shows that 15,4% of the variance in SOC is explained by the EI and JP continuums, while the t-values are significant at a 5 % level. This percentage is low, where one would prefer a bigger percentage to ensure the validity of the variance. It is possible that the sample size plays a role in this regard. In the case of the SN and TF continuums results are insignificant.

The negative t-values for EI and JP indicate the low-scoring EI and JP continuums to be respectively associated with a high SOC. Extraversion (E) and judging (J) belong to the lower end of the EI and JP continuums (less than 100); therefore, extraversion and judging (respectively) are associated with a strong SOC.

**Table 5.11: Multiple Regression Analysis:  
Personality Type and Sense of Coherence**

ANOVA for SOC							
		Source of Variation	Sum of Squares	df	Mean Square	F Ratio	P
Multiple R	0,434	Regression	10137,072	4	2534,268	5,520*	0,000
Multiple R <sup>2</sup>	0,189	Residual	43611,288	95	459,066		
Adjusted R <sup>2</sup>	0,154	Total	53748,360	99			
Standard Error of the Estimate	21,4258						
Variables in Equation							
	Unstandardized Coefficients	Std. Error	Standardized Coefficients (beta)	t Value	P		
(Constant)	178,812	23,432		7,631	0,000		
EI	-0,336	0,122	-0,256	-2,752*	0,007		
SN	0,055	0,164	0,032	0,338	0,736		
TF	0,269	0,163	0,156	1,652	0,102		
JP	-0,433	0,111	-0,379	-3,902*	0,000		

Note. \* 5% Level of Significance

The results in Table 5.11 confirm the findings of a strongly correlated extraversion and judging to SOC, as was found in Table 13. The low R square indicated for SOC, associated with a high F ratio, is an indication of possible multicollinearity.

To confirm whether multicollinearity applies, it is analysed in Table 5.12 by means of multiple regression.



**Table 5.12: Multiple Regression Analyses for Multicollinearity:  
EI/JP and Sense of Coherence**

ANOVA for LR							
		Source of Variation	Sum of Squares	df	Mean Square	F Ratio	P
Multiple R	0,406	Regression	8853,713	2	4426,856	9,565*	0,000
Multiple R <sup>2</sup>	0,165	Residual	44894,647	97	462,831		
Adjusted R <sup>2</sup>	0,148	Total	53748,360	99			
Standard Error of the Estimate	21,5135						
Variables in Equation							
	Unstandardized Coefficients	Std. Error	Standardized Coefficients (beta)	t Value	P		
(Constant)	201,841	16,647		12,125*	0,000		
EI	-0,323	0,122	-0,246	-2,645*	0,010		
JP	-0,389	0,106	-0,340	-3,660*	0,000		
Multicollinearity							
Eigenvalue	Condition Index	Variance Proportions					
		Constant	EI	JP			
2,950	1,000	0,00	0,00	0,00			
0,039	8,750	0,00	0,36	0,58			
0,011	16,355	1,00	0,64	0,42			

Note. 5% level of significance.

To confirm these findings, tolerance and variance indicator factor (VIF) values have to be assessed. The results are indicated in Table 5.13.

**Table 5.13 : Testing for Multicollinearity: Assessing Tolerance and VIF Values for SOC**

Variable	Collinearity Statistics	
	Tolerance	VIF
EI	0,995	1,005
JP	0,995	1,005

In theory, substantial collinearity is indicated by the tolerance value being above 0,90 and variance inflation factor (VIF) values being close to 1,0. The VIF indicates the degree to which one independent variable (EI) is explained by the other (JP) - where they are equal in this case. A large VIF (above 10) indicates low collinearity.

In the case of empirical results, high tolerance and VIF values indicate low collinearity, in order that the interpretation of the regression variate coefficients should not be affected adversely by collinearity. It can be interpreted that the EI and

JP continuums have a high impact on the SOC, but their similarity of effect (low collinearity) dictates that only one of them is needed in the prediction process.

With reference to Tables 5.12 and 5.13, Eigenvalues of the scaled and uncentered cross-products matrix, condition indices and variance-decomposition proportions are displayed, along with variance inflation factors (VIF) and tolerances for individual variables. There is a significant regression between the sense of coherence and extraversion/introversion, as well as judging/perceiving.

## 5.5 CONCLUSION

The null hypothesis, ie that several means are equal, was tested for the independent variable of personality and the dependent variables of sense of coherence (SOC) and (LR) respectively. In testing the equality of means wrt SOC and LR across groups by means of the ANOVA, evidence of a 5% level of significance was found in respect of temperament and attitude in the case of SOC. In the case of LR a level of 5% significance applied to attitude only. Tukey's technique of *post hoc* analyses results in positive evidence of differences between the elements of personality and sense of coherence (SOC) and learned resourcefulness (LR) on a 5% level of significance. In the case of SOC significant differences in temperament exist between SP and SJ, and in the case of attitude, between EJ and IP. In the case of LR the existence of significant differences could not be determined under the circumstances.

In this research study it was predicted that there is a significant relationship exists between sense of coherence and learned resourcefulness. It is indicated that a significant relationship exists between sense of coherence, extraversion and judging. No relationship was found to exist between personality and learned resourcefulness. This indicates that the MBTI can be used as a predictor of sense of coherence.

## 5.6 CHAPTER SUMMARY

In this chapter results were reported in terms of the general aim of this research study. The steps of which the empirical investigation consisted were discussed and the results of the empirical investigation were reported and interpreted. This was

followed by an integration of the research findings. In so doing, the fourth and fifth research objectives were achieved. Chapter 6 presents the conclusions, limitations and recommendations applicable to this research study.

## **CHAPTER 6**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

In this chapter, research limitations, conclusions and recommendations will be discussed.

#### **6.1 LIMITATIONS OF THE RESEARCH**

The limitations of the research concern the literature review and the empirical study.

As regards the literature review the following limitations were identified:

- A limited amount of literature, with specific reference to the role of personality measuring instruments and their relationship to the ability to cope with stress, seems to exist. Further exploration of the relationship between acknowledged personality measurement instruments and salutogenesis is required.

As regards the empirical investigation, the following limitations were identified:

- The small sample size brought about non-representivity and the omission of certain personality types, which rendered the drawing of significant conclusions problematic, made the calculation of significant correlation impossible and limited the potential for generalisation of the results. The sample was limited to the available technical personnel employed by the Department of Defence in Pretoria and Cape Town, therefore the results cannot confidently be accepted as a generally applicable to the whole population. Generalisation of the research findings is therefore not possible, which requires that a variety of geographical settings be explored and of more levels and occupations be incorporated, to provide more meaningful results. The research was based on convenience sampling, which could influence the study in that a true representative result

applicable to the population involved is not obtained. The sample group is frequently exposed to climate measurements and other research studies which could cause the individuals involved to be detached and uninvolved in the research content. The objectivity of the results might be jeopardised, whereby making generalised application is rendered even more impossible. As the sample was drawn on the basis of convenience, respondents were not categorised to fall within representative percentages of cultural diversity in the general South African population. Therefore the results obtained cannot be generalised to include the diverse South African population.

- Preference scores with relation to the MBTI (Myers, 1980) are not normally distributed for type code combinations, as the use of continuums results in a bimodal distribution. Since all sixteen types were not equally represented in the study, it is not possible to sufficiently indicate the significance of relationships.
- The research was based on the respondents' self-reported observations, which renders the results of the investigation subjective and therefore could have influenced the results. Research on this relationship could be supplemented by incorporating psychometric instruments, which approach the assessment from a peer/senior/subordinate 360-degree evaluation of the aspects researched, that apply to a respondent.

## **6.2 CONCLUSIONS**

This dissertation addressed the relationship between sense of coherence, learned resourcefulness and personality type among technical personnel. In determining whether a relationship exists between personality type and respective salutogenic constructs, the general objective of this research was reached. Research conclusions are subsequently formulated with regard to the literature survey and the empirical study for each of the research aims indicated in Chapter 1.

### 6.2.1 Literature Review

The first aim, as discussed in Chapter 3, was to determine from the literature how personality type is conceptualised according to the four Jungian-based, Myers and Briggs Type Indicator (MBTI) continuums of extraversion/introversion, sensing/perceiving, thinking/feeling and judging/perceiving.

It was found that personality type, as conceptualised by the MBTI, consists out of a combination of types and functions. Extraversion and introversion represent attitudes, while sensing, intuition, thinking and feeling represent functions. Personality can be subdivided into sixteen types, which are related to the use of either perception or judgement, as characterised by specific sets of behaviour.

The second aim was to determine how literature conceptualises the distinctive salutogenic constructs of sense of coherence and learned resourcefulness. This aspect was discussed in Chapter 2.

From the conceptualisation in Chapter 2 it was confirmed that sense of coherence is as established as the field of salutogenesis itself, since Antonovsky (1978) is the originator of both. Sense of coherence is relevant in behaviour science on account of the insight it brings in relation to the extent to which the world is experienced as comprehensible, manageable and meaningful. Learned resourcefulness explains and predicts the ability to remain well adjusted-despite exposure to stress (Rosenbaum, 1988).

The third aim was to determine whether a literature-based theoretical relationship exists between personality type, as conceptualised by the Myers and Briggs Type Indicator on the one hand, and sense of coherence and learned resourcefulness on the other hand. This aim was achieved in Chapter 3.

Through the investigation of previous and related research the existence of a definite relationship was indicated between personality type, sense of coherence and learned resourcefulness. In this research it was found that extraverts cope better with stress-provoking demands than introverts do, sensors fare better than intuitives, thinkers

better than feelers and judgers better than perceivers. It seems that, based on preference, the respective personality types make use of different coping mechanisms under the same circumstances.

From the literature it was demonstrated that there could be a relationship between personality type and the ability to cope with stress, as indicated by sense of coherence and learned resourcefulness.

### **6.2.2 Empirical Investigation**

The first aim was to determine the actual personality types, as conceptualised by Myers and Briggs Type Indicator continuums, sense of coherence and learned resourcefulness among a sample of technical personnel employed by the South African Department of Defence.

This was achieved in the empirical study by completing the MBTI form G (self-scoreable) to determine personality type, the Orientation to Life Questionnaire (OLQ) to measure sense of coherence, and the Self-Control Schedule (SCS) to determine learned resourcefulness on the part of the respondents.

The second aim was to determine the actual relationship existing between personality type, as conceptualised by the Myers and Briggs Type Indicator on the one hand, and sense of coherence and learned resourcefulness on the other hand.

This aim was achieved in Chapter 5, where it became clear that certain personality temperament and attitude types differed significantly in terms of their mean score on the SOC. It was found that a significant difference exists between sensing perceivers and sensing judgers in terms of their SOC. There is also a significant difference between extraverted judging (EJ) and introverted perceiving (IP). Both the EI and JP continuums have a high impact on the SOC and since they have similar effects only one of them is needed to predict SOC. A strong correlation exists between SOC and extraversion and judging. This indicates that a preference for either extraversion or judging could indicate a strong SOC. No significant relationship seems to exist between LR and personality.

The third aim was to determine whether personality type, as conceptualised by the Myers and Briggs Type Indicator, could be used as a predictor of sense of coherence.

From the research conducted there does seem to be evidence that personality type can predict sense of coherence. As regards the variance in SOC, the EI and JP continuums represent 15,4% - with t-values at a 5 % level of significance. This can be interpreted as indicating that for the purposes of this research, that personality does not significantly predict SOC. Therefore, factors other than personality could influence SOC.

From the integration of the research findings the overarching conclusion can be drawn that the research succeeded in its aim and that all the research problems were addressed.

### **6.3 RECOMMENDATIONS**

In view of the above, the following recommendations are made on the relationship between personality type, sense of coherence and learned resourcefulness respectively:

#### **6.3.1 Recommendations applicable to the Organisation**

- Research should be continued in a variety of work settings other than the technical environment to achieve a more generalised understanding of behaviour related to personality, sense of coherence and learned resourcefulness.
- By studying a broader sample of technical employees within the organisation, more reliable results could be obtained for ensuring effective planning, recruitment and staffing of technical personnel.



### 6.3.2 Recommendations on Further Research

- Additional research is required to examine the relationship between personality type, as conceptualised by the Myers and Briggs Type Indicator, and sense of coherence on the one hand and learned resourcefulness on the other hand. Stronger results could be obtained by exploring a broader sample to confirm the actual strength of relationships - especially in the case of learned resourcefulness.
- This study only incorporated two salutogenic constructs. A vast array of related instruments and constructs is available within the salutogenic paradigm. These instruments were not taken into consideration from the outset. A wider scope of salutogenic construct measurement instruments would yield more insightful conclusions, as some of these constructs might be influenced by personality to a greater or lesser extent.
- As personality is not a factor that significantly predicts LR, factors other than personality which could influence LR should be researched in order to shed more light on the character and nature of LR.
- As the instruments used for measuring MBTI, sense of coherence and learned resourcefulness are all based on self-reported evaluation, subjectivity must be provided for. The findings yielded by the respective instruments are related to perceived truths which could differ from reality. The research should endeavour to counter subjectivity by incorporating a wider variety of salutogenic measuring instruments whereby personality could be approached from different angles.
- This study should be regarded as a preliminary study. Further research is needed to determine whether MBTI personality type could predict other salutogenic constructs to clarify the relationship between these variables in a wider context.

## 6.4 CHAPTER SUMMARY

Science is a slow, incomplete process of reducing untruths. It does not provide an absolute, fixed truth to those who demand immediate or absolute answers on which to base prompt decisions. Social scientific thinking offers a conscious process of locating the best knowledge currently available, through careful reasoning, avoidance of errors and wariness of complete, final answers (Neuman, 1979). The evidence offered in support of this research hypothesis has to be questioned to result in further research in the quest to distinguish truth from untruth. The current results could assist researchers in making certain decisions more quickly than was the case prior to this research.

This final chapter focused on the research limitations, conclusions and recommendations. Limitations were addressed by listing the applicable aspects whereafter conclusions related to the research were drawn. Lastly recommendations derived from the study of the relationship between personality, as conceptualised by the Myers and Briggs Type Indicator, and sense of coherence on the one hand and learned resourcefulness on the other hand, were made.

## LIST OF REFERENCES

- Aldwin, C.M. (1994). *Stress, coping and development: an integrative perspective*. New York: The Guilford Press.
- Altmeier, E. H., & Happ, D. A. (1985). Coping skills-training's immunization effects against learned helplessness. *Journal of Social and Clinical Psychology*, 3(2), 181-189.
- Antonovsky, A. (1996). The Salutogenic model as a theory to guide health promotion. *Health-Promotion International*, 11(1), 11-18.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science and Medicine*, 36, 725-733.
- Antonovsky, A. (1987). *Unravelling the mystery of health: How people manage stress and stay well*. San Francisco, CA: Jossey-Bass.
- Antonovsky, H. & Sagy, S. (1986). The development of a sense of coherence and its impact on responses to stress situations. *Journal of Social Psychology*, 126, 213-225.
- Antonovsky, A. (1979). *Health, stress and coping: new perspectives on mental and physical well-being*. San Francisco: Jossey-Bass.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44, 1175 - 1184.
- Barnard, N. (2001). *Die verwantskap tussen stres en persoonlikheidsweerstandsbronne by middelvlak-bestuurders tydens transformasie*. Unpublished MA Industrial Psychology dissertation. Pretoria: University of South Africa.
- Ben-Sira, Z. (1985). Potency: A stress buffering link in the coping-stress-disease relationship. *Social Sciences Medical Journal*, 21(4), 379-406.

- Bless, C. & Kathuria, R. (1993). *Fundamentals of Social Statistics: An African Perspective*. Johannesburg: Juta & Co LTD.
- Britton, M. (2000). *A group dynamic interpretation of a teambuilding event: a case study*. Unpublished MA Industrial Psychology dissertation. Pretoria: University of South Africa.
- Cilliers, F., Viviers, R. & Marais, C. (1998). Salutogenesis: A model to understand coping with organisational change. *UNISA Psychologia*, 25(2), 32-38.
- Cloete, C. (2001, April 12). *Approval of SAAF Short-term Implementation Plan*. CAF/DACP/302/5. Pretoria: SAAF.
- Coetzee, M. (1996). *The relationship between career patterns and personality types*. Unpublished Masters dissertation. Pretoria: University of South Africa.
- Compton, W. (1998). Measures of mental health and a five-factor theory of personality. *Psychological Reports*, 83, 371-381.
- De Beer, J. (2000). *MBTI Type Table and Percentage Distributions*. Johannesburg: Jopie van Rooyen and Partners.
- Dunnette, M.D. & Hough, L.M. (1990). *Handbook of Industrial and Organisational Psychology* (2<sup>nd</sup> Ed). California Palo Alto: Consulting Psychology Press.
- Edwards, D. & Riordon, S. (1994). Learned resourcefulness in Black and White South African university students. *Journal of Social Psychology*, 134 (5), 665-675.
- Fouché, E. & Rothmann, S. (2001). Bestuurders in 'n openbare maatskappy se "coping" met transformasie. *Journal of Industrial Psychology*, 27 (1), 32-38.

- Frankenhoff, C. (1998). Antonovsky's sense of coherence concept: an instrument for primary prevention in social work services. *International Social Work*, 41 (4), 511-522.
- Furnham, A. (1996). The big five versus the big four: the relationship between the Myers-Briggs Type Indicator (MBTI) and NEO-PI five-factor model of personality. *Personality and Individual Difference*, 21 (2), 303-307
- Furnham, A. & Stringfield, P. (1993). Personality and work performance: Myers-Briggs Type Indicator correlates of managerial performance in two cultures. *Personality and Individual Difference*, 14 (1), 145-153.
- Gabriel, M. (2000). *Personality types as predictors of team roles*. Unpublished MA Industrial Psychology dissertation. Pretoria: University of South Africa.
- Ghorboni, N., Watson, P.J., & Morris, R.J. (2000). Personality, stress and mental health: evidence of relationships in a sample of Iranian managers. *Personality and Individual Difference*, 28, 647-657.
- Goleman, D. (1995). *Emotional Intelligence*. New York NY: Bantam.
- Gruber V.A. & Wildman, B.G. (1987). The impact of dysmenorrhea on daily activities. *Behaviour Research and Therapy*, 25, 123-128.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analyses*. UpperSaddle River NJ: Prentice Hall.
- Hammer, A.L. (1993). *Introduction of type and careers*. Palo Alto: Consulting Psychologists Press.
- Hornby, A.S. (1986). *Oxford Advanced Learner's dictionary of current English*. Oxford: Oxford University Press.

- Huysamen, G.K. (1981). *Introductory statistics and research design for the behavioural sciences Volume II* ( 2<sup>nd</sup> ed). Bloemfontein: G.K. Huysamen.
- Janisse, M.P. (1988). *Individual differences, stress and health psychology*. New York: Springer-Verlag.
- Jordan, P. (1997). The national question in post-1994 South Africa - a discussion paper in preparation for the ANC's 50<sup>th</sup> National Conference.[On-Line]. Available Internet: [www.anc.org.za/ancdocs/discussion/natquestion](http://www.anc.org.za/ancdocs/discussion/natquestion).
- Jung, C.G. (1949). *Psychological types or the psychology of individuation*. London: Routledge & Kegan Paul.
- Kaplan, H.B. (1983). *Psychosocial stress: trends in theory and research*. Orlando: Academic Press.
- Keirse, D. & Bates, M. (1984). *Please understand me*. (5<sup>th</sup> ed). Del Mar: Prometheus Nemesis Book Company.
- Khalsa, K.K. (1993), The experience of stress by Jungian psychological types: relationships among the Myers Briggs Type Indicator, the Daily Hassles Scale and symptoms of stress for working adults. *Dissertation abstracts international*, 53 (12-A), 4255-4256.
- Kobasa, S.C. (1979). Stressful life events, personality and health: an inquiry into hardiness. *Journal of Personality and Social Psychology*, 37 (1), 1-11.
- Kossuth, S.P. (1998). *Team building and salutogenic orientations contextualised in a performance model*. Unpublished D.Litt et Phil thesis. Pretoria: University of South Africa.
- Leedy, P.L. (1993). *Practical research, planning and design* (5<sup>th</sup> ed.). New York: Macmillan.

- Levert, T. Lucas, M. & Ortlepp, K. (2000). Burn-out in psychiatric nurses: contributions of the work environment and a sense of coherence. *South African Journal of Psychology* 30 (2), 36 - 43.
- Lifton, R.J. (1993). *The Protean Self: Human Resilience in an Age of Fragmentation*. New York: Basic Books.
- Livneh, H. & Antonak, R. (1997). *Psychosocial adaptation to chronic illness and disability*. Gaithersburg, MD: Aspen.
- Lustig, D.C., Rosenthal, D.A., Strauser, D.R. & Haynes, K. (2000). The relationship between sense of coherence and adjustment in persons with disabilities. *Rehabilitation Counseling Bulletin* 43 (3), 134 - 141.
- Madsen, D. (1992). *Successful dissertation and thesis – a guide to student research from proposal to completion*. California: Jossey-Bass.
- Malone, P. (1991). *Myers-Briggs goes to the movies: a guide to screen characters and Myers-Briggs Type Indicator*. Melbourne: Spectrum.
- Matteson, T.M. & Ivancevich, J.M. (1982). *Managing job stress and health: the intelligent person's guide*. New York: The Free Press.
- McCormick, E.J. & Ilgen, D.R. (1985). *Industrial and organizational psychology* (8<sup>th</sup> ed). London: Unwin Hyman.
- Meichenbaum, D. (1977). *Cognitive-behaviour modification: An integrative approach*. New York: Plenum.
- Meichenbaum, M. & Jaffe, Y. (1983). Learned helplessness: the role of individual differences in learned resourcefulness. *British Journal of Social Psychology*, 22, 215-225.
- Meichenbaum, D. (1985). *Stress inoculation training*. New York: Pergamon Press.

- Meyer, W.F., Moore, C. & Viljoen, H.G. (2000). *Personologie: van individu tot ekosisteem*. Johannesburg: Heineman.
- Morgan, G. (1980). Paradigms, metaphors and puzzle solving in organization theory. *Administrative Science Quarterly*, 25, 605-620.
- Moustakas, C.E. (1994). *Phenomenological research methods*. Thousand Oaks (CA): Sage
- Mouton, J. & Marais, H.C. (1992). *Basiese begrippe: metodologie van die geesteswetenskappe* (3<sup>rd</sup> ed.). Pretoria: RGN.
- Muchinsky, P.M., Kriek, H.J. & Schreuder, A.M.G. (1998). *Personnel psychology*. Halway House: International Thompson Publishing.
- Myers, I.B. (1998). *Introduction to type*. Consulting Psychologist Press: Palo Alto, CA.
- Myers, I.B. & McCaulley, M.H. (1985). *A guide to the development and use of the Myers-Briggs type indicator*. Consulting Psychologist Press: Palo Alto, CA.
- Nakano, K. (1995). Assessment of self-control behaviour: validity analyses on a Japanese version of the self-control schedule. *Journal of Clinical Psychology*, 51(3), 378-382.
- Neuman, W.L. (1997). *Social research methods – qualitative and quantitative approaches* (3<sup>rd</sup> ed.). Needham Heights, MA: Allyn & Bacon.
- Oosthuizen, M. (1994). *Stressimptomatologie by Nooddienspersoneel*. Unpublished M.Com dissertation. Pretoria: University of South Africa.
- Ortlepp, K. & Friedman, M. (2001). The relationship between sense of coherence and indicators of secondary traumatic stress in non-professional trauma counsellors. *South African Journal of Psychology*, 31(2), 38-45.



- Papalia, D.E. & Olds, S.W. (1985). *Psychology*. McGraw-Hill: New York.
- Plug, C., Meyer, W.F., Louw, D.A. & Gouws, L.A. (1988). *Psigologie Woordeboek* (2<sup>nd</sup> ed). Lexicon: Johannesburg.
- Poppius, E., Tenkanen, L., Kalimo, R. & Heinsalmi, H. (1999). The sense of coherence, occupation and risk of coronary heart disease in the Helsinki heart study. *Social Science and Medicine*, 49, 109 - 120.
- Pretorius, M. & Rothmann, S. (2001). Die verband tussen koherensiesin, lokus van beheer, selfdoeltreffendheid en werkstevredenheid. *Journal of Industrial Psychology*, 27 (1), 25-31.
- Prinsloo, V. (1993). 'n *Eksploratiewe ondersoek na die hantering van verandering deur hoëvlak-bestuurders aan die hand van salutogenetiese indikatore*. Unpublished M.Com dissertation. Pretoria: University of South Africa.
- Quenk, N. L. (1992). *Beside ourselves*. Davies-Black Publishing: Palo Alto, CA.
- Richards, P.S. (1985). Construct validation of the self-control schedule. *Journal of Research in Psychology*, 19(2), 208-218.
- Rosenbaum, M. & Smadar, B. (1995). "The more I know about the war the more I fear?": Information seeking and resourcefulness during the Gulf War in Israel. *Journal of Social and Clinical Psychology*, 14 (3), 205-224.
- Rosenbaum, M. (1990). *Learned resourcefulness - on coping skills, self-control and adaptive behaviour*. New York: Springer Publishing Company.
- Rosenbaum, M. (1988). Learned resourcefulness, stress and self-regulation. In S. Fisher & J. Reason (Eds.). *Handbook of life stress, cognition and health*. Chichester, UK: John Wiley & Son.

- Rosenbaum, M. & Ben-Ari Smira, K. (1986). Cognitive and personality factors in the delay of gratification of hemodialysis patients. *Journal of Personality and Social Psychology*, 51 (2), 357-364.
- Rosenbaum, M. & Palmon, N. (1984). Helplessness and resourcefulness in coping with epilepsy. *Journal of Consulting and Clinical Psychology*, 52(2), 244-253.
- Rosenbaum, M. & Jaffe, Y. (1983). Learned helplessness: the role of individual differences in learned resourcefulness. *British Journal of Psychology*, 22 (3), 215-225.
- Rosenbaum, M. & Rolnick, A. (1983). Self-control behaviours and coping with seasickness. *Cognitive Therapy and Research*, 7 (1), 93-97.
- Rosenbaum, M. (1980). A schedule for assessing self-control behaviours: Preliminary findings. *Behaviour Therapy*, 11, 109-121.
- Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, 1-28.
- Roush, P.E. & Atwater, L. (1992). Using the MBTI to understand transformational leadership and self-perception accuracy. *Military Psychology*, 4(1), 17-34.
- Rude, S.S. (1989). Dimensions of self-control in a sample of depressed women. *Cognitive Therapy and Research*, 13, 363-375.
- Sammallahti, P.R., Holi, M.J., Komulainen, E.J. & Aalberg, V.A. (1996). Comparing two self-report measures of coping - the sense of coherence scale and the defense style questionnaire. *Journal of Clinical Psychology*, 52(5), 517-524.
- Skinner, W.W. (1991). *The Effects of Psychological Type on Stress Coping Resources and Professional Burn-out*. Unpublished PHD theses. Georgia: Georgia State University.

- Smit, G.J. (1986). *Psigometrika: Aspekte van toetsgebruik*. Pretoria: HAUM.
- Steffens, F.E. (1992). *Statistiek (Studiegids 2 vir SCS100-Y)*. Pretoria: University of South Africa.
- Strümpfer, D.J.W. (2001). Psychometric properties of an instrument to measure resilience in adults. *South African Journal of Psychology*, 31(1), 36-44.
- Strümpfer, D.J.W. & Mlonzi, E.N. (2001). Antonovsky's sense of coherence scale and job attitudes: three studies. *South African Journal of Psychology*, 31(2), 30-37.
- Strümpfer, D.J.W. (1997). Sence of coherence, negative affectivity and general health in farm supervisors. *Psychological Reports*, 80, 963 - 966.
- Strümpfer, D.J.W. (1995) The origins of health and strength: from 'salutogenesis' to 'fortigenisis'. *South African Journal of Psychology*, 25 (2), 81-89.
- Strümpfer, D.J.W. (1990) Salutogenesis: a new paradigm. *South African Journal of Psychology*, 20 (4), 265 - 276.
- Thomas, C.B. (1981). Stamina: The thread of human life. *Journal of Chronic Diseases*, 34, 41-44.
- Van Rooyen, J., de Beer, J. & Proctor, D. (1999). *Myers-Briggs Type Indicator training manual* (4<sup>th</sup> ed). Johannesburg: Jopie van Rooyen & Partners.
- Viviers, A.M. (1996). *Salutogenese in organisasiekonteks*. Unpublished D.Com thesis. Pretoria: University of South Africa.
- Viviers, A.M. (1998a). Stress: is there anything positive about it? *Management Today*, 14(7), 42-43.
- Viviers, A.M. (1998b). Stress: identifying non-copers and helping them. *Management Today*, 14(8), 38-39.

- Viviers, A.M. (1998c). Salutogenesis as a means of optimising work and life in the new Millenium. *UNISA Psychologia*, 25 (2), 27-31.
- Vollrath, M. & Torgersen, S. (2000). Personality types and coping. *Personality and Individual Differences*, 29, 367-378.
- Williams, D.L. (2000). *Group Type and Group Culture: Using the Myers-Briggs Type Indicator and Air Combat Command Culture and Leadership Survey in a Military Sample Study*. Unpublished DBA thesis. Nova: South-eastern University.
- Wolfaardt, J.B., Botha, E., De Beer, M., Viviers, R., Vosloo, S, & Bekwa, N. (1999). *Bedryfsielkundige Navorsing*. (Studiegids 1 vir IOP201-Q). Pretoria: UNISA.

# MILITARY PSYCHOLOGICAL INSTITUTE



## PERSONALITY AND WORKPLACE BEHAVIOUR SURVEY

The Military Psychological Institute (MPI) continuously conducts research on various behaviour-related matters. This research project aims at determining the relationship between personality and a person's ability to cope with normal stress-provoking life events and learning to cope in the workplace. Your occupational group has been identified to represent a sample of the bigger SAAF population of employees. Research results will enable prediction of work-related behaviour based on personality type. Research findings will be utilised to the benefit of your occupational class, as well as other occupational classes in the SAAF.

Completion of the attached questionnaire is voluntary and your willingness to co-operate in this regard is highly appreciated. Feedback on results will be made available to participants, provided that their respondent numbers and postal addresses are indicated.

The questionnaire consists of three parts, which are subdivided into 81 questions. Kindly indicate your preference by encircling the most appropriate answer that applies to you as an individual.

A Myers and Briggs Type Indicator questionnaire is also included. Follow the instructions in the booklet provided. This instrument requires the making of crosses to indicate your preference. Kindly do not make any marks in the booklets.

**BIOGRAPHICAL QUESTIONNAIRE**

1.	Age:										
	Younger than 25 Years		26 - 35 years		36 - 50 years		51 - 60 years		61 years and older		
2.	Years of service:										
	Less than 2 years		2 - 5 years		6 - 10 years		11 - 20 years		21 - 30 years		31 - 40 years
3.	Gender:										
	Male					Female					
4.	Highest Qualification:										
	Lower than Std 8		Std 8		Std 10		N6 or S6		T3 or degree		Post graduate Degree
5.	Present rank:										
	L Cpl	Cpl	Sgt	F Sgt	WO1	WO2	2Lt	Lt	Capt	Maj	
6.	Number of years in present rank:										
	Less than one year			1 - 3 years			3 - 6 years		More than six years		
7.	Number of previous transfers between bases/units:										
	None		1 - 3 transfers			4 - 7 transfers			More than seven transfers		
8.	Number of previous transfers between squadrons:										
	None		1 - 3 transfers			4 - 7 transfers			More than seven transfers		
9.	Are your career goals in alignment with the goals of the organisation?										
	Yes					No					
10.	Military and operational combat experience:										
	Conventional warfare		Bush war		Live simulation exercises		Operational training		None		

11.	Employment status:							
	Was invited to apply elsewhere		Alternative offer(s) have been made		Planning to resign		Waiting for EIP or staffing	
12.	Do you have qualifications or certificates in fields of interest other than your function?							
	Yes		No		Pursuing it			
13.	Number of previous stress management courses attended:							
	0		1		2		More than 2	
14.	How long ago:							
	6 months ago		1 year ago		2 years ago		More than 2 years ago	
15.	Number of dependants:							
	0	1	2	3	4	5	6	More than 6
16.	Type of accommodation:							
	Military		State		Private tenant		Private-owner	