

TEAM BUILDING AND SALUTOGENIC
ORIENTATIONS CONTEXTUALISED IN A
PERFORMANCE MODEL

by

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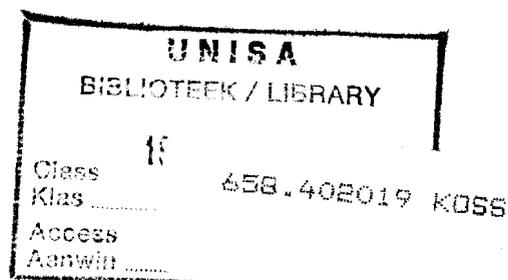
TO MY FATHER ABOVE, FOR HIS STRENGTH.

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SUMMARY

TEAM BUILDING AND SALUTOGENIC ORIENTATIONS CONTEXTUALISED IN A PERFORMANCE MODEL

The purpose of this research has been to investigate the relationships between team building, salutogenesis and performance.

Team building was investigated by focusing on the directive and interactive dimensions of

- climate
- supervisory support
- team work.

Salutogenesis was investigated by focusing on the concepts of

- sense of coherence
- locus of control
- self-efficacy.

Work performance was investigated by focusing on

- performance measurement criteria
- self-appraisal as a cognitive mediator between performance and salutogenesis.

In the literature survey a performance model was postulated to explain the relationships between team building, salutogenesis and performance. The personality profile of the optimal functioning individual in the context of the performance model was compiled from the personality profiles of the optimal functioning team member, the optimal functioning individual and the optimal performing individual.

In the empirical investigation a sample (N = 245) of mine employees completed a battery of questionnaires using computerised data collection. The battery was subjected to item-test correlations, Cronbach alpha coefficient measurements and factor analyses, to establish the reliability and structure of each questionnaire. Intercorrelations were calculated and analysed to test the relationships between the dimensions, and concepts. Following this, the factor analysis of a five factor model established the relationships between the dimensions and concepts of team building, salutogenesis and performance. Finally, LISREL-analyses were performed to test the conceptual structure of the relationships.

The empirical findings indicate that team building forms a construct based on directive and interactive dimension of climate, supervisory support and team work. Salutogenesis forms a construct and it includes the incorporation of work performance as a concept of salutogenic orientations. The relationship between the constructs was confirmed using LISREL-analysis, thus validating the integration of the dimensions and properties within each construct into the properties of a performance model; and the personality profiles within each construct into the personality profile of the optimal functioning individual. The empirical results were integrated with the literature review.

Team building and salutogenic orientations are integrated into a performance model which explains the relationships between the work environment, the behaviour of the individual and his/her performance within the context of the work environment.

Key words

Team building, climate, supervisory support, team work, directive and interactive dimensions, salutogenesis, sense of coherence, locus of control, self-efficacy, performance criteria, self-appraisal.

CHAPTER 1

SCIENTIFIC OVERVIEW OF THE RESEARCH

The aim of this chapter is to provide a background and motivation for this research. The problem statement will be discussed and the aims will be specified. The research model will also be explained. The paradigm perspectives of the research will be given. This will include the relevant paradigms, metatheoretical statements and theoretical models. Hereafter, the research design and methodology will be presented. Finally the chapter lay-out will be given. This chapter concludes with a chapter summary.

1.1 BACKGROUND AND MOTIVATION FOR THE STUDY

This research relates to the development of an organisational performance model based on relationships between team building, salutogenesis and work performance. In this regard Viviers (1996:3) notes that whilst the effects of salutogenesis have been well researched in the health psychology field there has not been much research relating to salutogenesis in the work environment.

With this in mind, this research focusses on organisational development at the organisation-individual interface level (Lawrence & Lorsch, 1967:60-83). This research aims to determine whether or not measurable team building properties in organisations do in fact play a role in motivating an employee to achieve organisational results. The rationale underlying this research is that the view a person has of him-/herself in terms of salutogenesis and how he/she performs is influenced by the organisational environment of which the organisational climate properties, team work and supervisory support play a significant role.

Central to this research is the organisation and the employee's functioning within the organisation. Organisation is necessary because an individual alone is unable to fulfil all his/her needs and wishes and work responsibilities often as a result of a lack in

ability, strength and time. Therefore, the individual must rely on others in the organisations for help in fulfilling his/her needs and responsibilities. This is effected in an organisation through the co-ordination of effort.

However, for co-ordination of effort to be effective, some goals or objectives to be achieved must exist and there should be agreement concerning the goals among the parties who are co-ordinating their efforts (Schein, 1965:7). Co-ordination of effort is not possible without submitting to some kind of authority, therefore, the role of the supervisor is most important in creating the desired organisational climate.

Schein (1965:8) gives a useful definition of an organisation which highlights the interdependency of an employee and his/her supervisor in the achievement of organisational goals:

An organisation is the rational co-ordination of the activities of a number of people for the achievement of some common explicit purpose or goal (through the division of function) and through a hierarchy of authority and responsibility.

In an organisational study carried out in the JCI Limited mining organisation between 1989 and 1992, the JCI Limited organisational development unit measured organisational climate and introduced a team building intervention onto one of the platinum mines in the Group in an endeavour to improve individual, group and organisational performance on the mine. Both the feedback of the climate survey results and team building intervention had a marked impact on climate and production results. The help provided by the organisational development unit in achieving these improvements has been widely acknowledged by mine management. Achievements in this area have prompted the researcher to do further research in team building, with specific emphasis on aspects of the properties contributing to team building such as climate, supervisory support, team work, and the relationships with personality orientations (salutogenesis) and their influence on performance.

1.2 PROBLEM STATEMENT

A psychological problem faced by most organisations is how to motivate a person to perform well in his/her role. This can be viewed in a number of ways, namely how to create psychological growth in an individual or how to develop in an individual the kind of flexibility and adaptability that may well be needed for organisations to survive in the face of a changing environment. The organisational psychologist would invariably look for influencing factors within the work environment to enhance motivation and performance. He/she already has the benefit of research by certain psychologists to help him/her in formulating a strategy. In general, this earlier research relates to studies in work group behaviour, methods of supervision (management style) and the degree of individual participation in decision making.

The reason for this research is that whilst there is research on various aspects of the team building process (which for the purposes of this study includes the critical variables that make up organisational climate, supervisory support and team work), there is a paucity of research in the South African mining industry linking team building processes to the salutogenic strengths as described by Antonovsky (Cooper & Payne, 1991:68-103) and performance.

Owing to the traditional hierarchical and autocratic management style characterising the mining industry and the rigid structures that prevail between various work groups (engineering vs. production; mine management vs. unions; service departments vs. production), the development of a positive team building environment has been difficult to accomplish. As a result, conflict arises between departments which invariably has a negative impact on the work behaviour and performance of the employees. How to overcome this problem has become an important issue facing industrial psychologists working on mines.

Furthermore, very little scientific research has been conducted on the effectiveness and the value of team building in mining and other industries. Indeed, according to De

Meuse and Liebowitz (1981:357-378), whilst team building appears to be an intervention with great potential for improving employee attitudes, perceptions and behaviours as well as organisation effectiveness, it is difficult to obtain experimental rigour in team building research because there are a variety of variables that could lead to effective individual and team performance. An understanding of these variables gives an indication of which organisational climate, supervisory support and team work factors are likely to enhance individual and organisational performance. Furthermore, Katz and Kahn (1978:681) noted that the number of well documented instances in which organisational changes of the direct systematic kind were introduced and the effect measured, is not large. The solution, therefore, is to identify the factors in the work environment that contribute to effective team building and, as such, have a positive effect on the behaviour and performance of an individual.

One of the problems faced in this research is how to measure the effectiveness of the overall team building process which includes the important dimensions of organisational climate, teamwork and supervisory support. A further issue, faced in this research, is to explore and evaluate the theoretical descriptions of psychological optimality in employees within the context of team building, and how best to measure the performance of an individual within the context of psychological optimality and team building. By establishing an understanding of the basis of these criteria, it ought to be possible to evaluate the nature of the relationships between them. This should lead to an understanding of how employees are able to cope in the work situation, and how best they can make use of their skills and capabilities to perform optimally. Furthermore, if relationships between team building, salutogenesis and performance do exist then it should be possible to apply interventions aimed at improving team building, the attitudes and work behaviour of employees and their performance. This will enhance the well-being of each employee and the overall effectiveness of the organisation.

From the above the following research questions are formulated:

- What are the critical variables in organisation climate, supervisory support and team work that together determine the team building profile.

- What is salutogenesis? What are the salutogenic constructs that combine to form the salutogenic profile?
- What constitutes a work performance profile?
- Is it possible to integrate these theoretical profiles into a model for optimal performance?
- To what extent are there significant relationships within team building which establish the existence of the team building profile?
- To what extent are there significant relationships within salutogenesis which establish the existence of the salutogenic profile?
- To what extent are there significant relationships within work performance which establish the existence of the work performance profile?
- Are there meaningful measurable relationships between team building profile, the salutogenic profile and the work performance profile leading to the development of a performance model in this research?
- What recommendations can be formulated for industrial psychology based on the findings of the research?

1.3 AIMS OF THE RESEARCH

The general aim of this research is the development of a performance model based on the relationships between team building, salutogenesis, work performance and the determination of the personality profile of an optimal performing individual within the context of the model.

In the literature review the specific aims are:

- to create a team building profile of the directive and interactive dimensions of organisational climate, supervisory support, team work, and to determine the personality profile of the optimal functioning team member;
- to create a salutogenic profile (sense of coherence, internal locus of control and self-efficacy) and the personality profile of the optimal functioning individual;
- to create a work performance profile and the personality profile of the optimal

performing individual;

- to integrate the three profiles into the performance model in this research and into the personality profile of the optimal functioning individual within the context of the performance model.

The specific aims of the empirical study are

- to investigate the properties of the team building profile and the personality profile of the optimal functioning team member;
- to investigate the properties of the salutogenic profile and the personality profile of the optimal functioning individual;
- to investigate the properties of the work performance profile and the personality profile of the optimal performing individual within the context of the salutogenic profile;
- to integrate the properties of the team building, the salutogenic, and the work performance profiles into the performance model. Also develop a personality profile of the optimal functioning individual in the context of the performance model;
- to formulate recommendations for industrial psychology and further research based on the findings in the research.

1.4 THE RESEARCH MODEL

The research model of Mouton and Marais (1994:21) serves as a framework in this research. It aims to incorporate the five dimensions of the social science research, namely the sociological, ontological, teleological, epistemological and methodological dimensions and to systematise it within the framework of the research process. The five dimensions are aspects of one and the same process, namely research.

The assumption of this model is that the model represents a social process. According to Mouton and Marais (1994) "social sciences research is a collaborative human activity in which social reality is studied objectively with the aim of gaining a valid understanding of it".

In figure 1.2 the model is described as a systems theoretical model with three subsystems which interrelate with each other and with the research domain of the specific discipline – in this case industrial psychology. The subsystems represent the intellectual climate, the market of intellectual resources, and the research process itself.

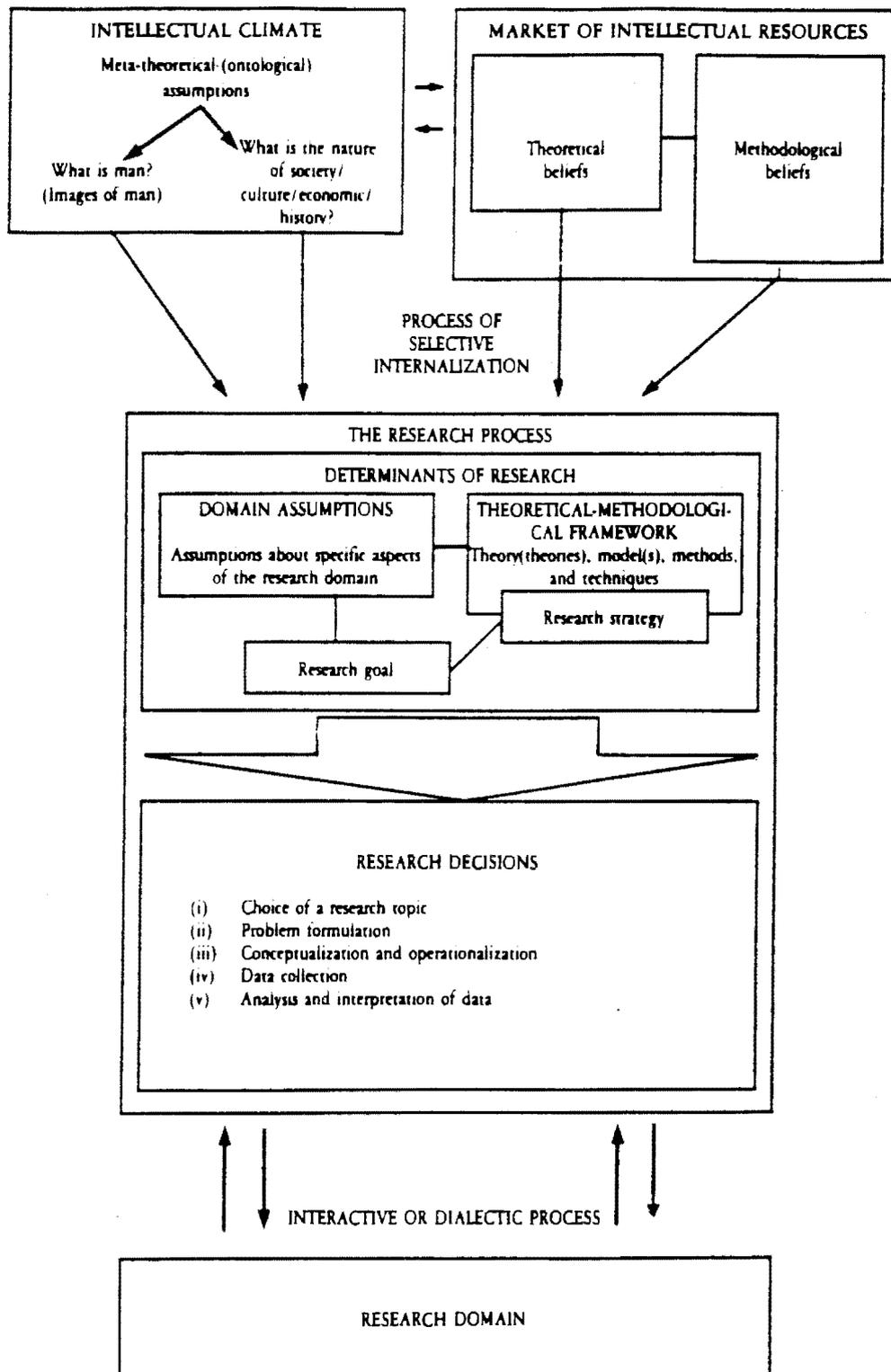


Figure 1.2: The research model (Mouton & Marais, 1994:22)

1.4.1 The intellectual climate

The intellectual climate refers to a variety of metatheoretical values of the research. Their origin is mainly philosophical and are neither testable nor meant to be tested (Mouton & Marais, 1994:21). For the purposes of this research the assumptions are formulated with respect to the relevant paradigms relating to industrial psychology, psychology, organisations and performance.

1.4.2 The market of intellectual resources

The market of intellectual resources refers to the collection of beliefs which has a direct bearing upon the epistemic states of scientific statements. There are two major types that can be differentiated, namely the theoretical beliefs about the nature and structure of phenomena, and methodological beliefs concerning the nature and structure of the research process. For the purposes of this research the central hypothesis; conceptual descriptions about directive team building, interactive team building, salutogenic strengths, performance criteria, self-appraisal of performance, models, and theory and methodological assumptions have been presented.

1.5 THE PARADIGM PERSPECTIVE OF THE RESEARCH

With reference to the paradigm perspective of the research, the relevant paradigms, metatheoretical statements, the market of intellectual resources and the methodological assumptions will be discussed.

As a discipline this research focuses on psychology and industrial psychology, as fields of application. More specifically the literature study is on the variables that together constitute team building, salutogenesis and performance. The empirical study focuses on psychometrics and statistical analyses of the data within and between the paradigms.

According to Kuhn (1970) a paradigm is a model for conducting normal research. The paradigm defines the problem area for the researcher, what he/she should research and how it should be done. Paradigms also determine what should be regarded as valid solutions. However, when comparing the natural and social sciences using Kuhn's theory of a paradigm as a point of reference, the social sciences would appear to be in a pre-paradigmatic phase of development (Mouton & Marais, 1994:150) because of the fact that they are not a discipline in which there is a single dominant paradigm. The social sciences are not exact sciences, when compared to the natural sciences. Thus the paradigmatic predictions in the social sciences are made within the notion of probability or levels of acceptance usually determined through statistical analyses. The principles of the paradigmatic perspectives apply equally to this research.

The approach of this research will be from a systems viewpoint (Schein, 1965:4). The systems will be studied from macro (organisational), meso (group), and micro (individual) standpoints. Underlying the philosophy of the systems psychology (Katz & Kahn, 1978) is the concept of the organisation which is the framework within which this research takes place.

1.5.1 The relevant paradigms

There are three paradigm perspectives applicable in this research. The literature survey on the team building profile will be presented from the behaviourist and humanistic paradigms. The literature survey on the salutogenic profile will be presented from the humanistic and salutogenic paradigms. The literature survey on work performance profile and the empirical research will be presented from the functionalist paradigm.

1.5.1.1 The behaviourist paradigm

The basic principles of behaviourism are captured by Watson and Ivey and Simek-Downing.

Watson who is usually regarded as the father of behaviourism (Meyer, Moore & Viljoen, 1990:174) mentions the central concepts of the behaviourist paradigm:

- Observable behaviour is regarded as the only acceptable object of study in psychology.
- Behaviourism is regarded as consisting of connections between stimuli and responses.
- The prediction of behaviour is considered to be the ultimate objective of psychology.

Ivey and Simek-Downing, (1980:217-227), present other basic assumptions of the behaviourist paradigm:

- The human condition can be studied objectively and predicted.
- The success of predictions and interventions can be measured.
- An individual's behaviour is directly related to events and stimuli in the environment.

1.5.1.2 *The humanistic paradigm*

The following are the basic assumptions of the humanistic paradigm. Humanistic psychology takes as its model the responsible human being who is able to choose freely from the possibilities available to him. It emphasises man in the making – a person in the process of growing, striving to realise his potential (Meyer, Moore & Viljoen, 1990:321-322). According to Quitmann (1985:16-17) the humanistic paradigm relates to

- humans being more than the sum of their parts.
- humans who have and make decisions based on choices. They can actively change their life and situations. Underlying this is the need of actualisation of potential.

1.5.1.3 *The salutogenic paradigm*

The following are the assumptions of the Salutogenic paradigm (Strümpfer, 1990:265-268):

- The emphasis is placed on the origins of health or well-being.
- The primary concern is with the maintenance and enhancement of well-being.
- The assumptions that stressors are inherently bad are rejected in favour of the possibility that stressors may have salutary consequences.
- The focus is on how a person can manage stress and stay well.

Breed (1997) elaborates on other important findings on the salutogenic paradigm. Breed (1997:40) suggests that salutogenesis is a new paradigm which may have developed from pathogenesis, but has now independent standing in its own right. According to Breed (1997:62) salutogenesis has established itself as a recognised discipline in terms of its own research findings, particularly in the field of health psychology where it is firmly established as a new paradigm.

1.5.1.4 *The functionalist paradigm*

According to Morgan (1980:608) the following are the important features of the functionalist paradigm:

- The functionalist paradigm is primarily regulative and pragmatic in basic orientation.
- It is concerned with understanding society in a way which generates useful empirical knowledge.
- Society has a concrete, real existence and a systemic character oriented to produce an ordered and regulated state of affairs.
- Behaviour is always seen as being contextually bound in a real world of concrete and tangible social relationships.

According to the classic functionalist William James (Jordaan & Jordaan, 1989:17) the basic proposition of functionalism “was that people have consciousness which fulfils certain functions aimed at enabling them to adapt to their environment”. Consciousness establishes the relationship between the functions that are performed by an individual and behaviour. According to the functionalists, adaptive behaviour is promoted through the learning process (acquisition of knowledge and skills) (Jordaan & Jordaan, 1989:19).

1.5.2 Metatheoretical statements

The metatheoretical assumptions represent an important category of assumptions underlying the theories, models and paradigms of this research. The metatheoretical values and beliefs have become part of the intellectual climate of a particular discipline in the social sciences (Mouton & Marais, 1994:21). Metatheoretical statements are presented on the following:

1.5.2.1 Industrial psychology

This research project is undertaken in the context of industrial psychology which is

conceptually described as “the scientific study of human behaviour and psychological conditions in the work related aspects of life and the application of knowledge toward the minimisation of problems in this context” (Pheiffer, 1994:4, referring to McCormick & Ilgen, 1981).

According to Reber (1985:352), industrial psychology refers to a branch of applied psychology and is the umbrella term covering organisation, economic, and personal psychology and includes such areas as tests and measurement, the study of organisations and organisational behaviour, personnel practices, the effects of work, fatigue and pay on the individual. With reference to this research, organisational behaviour and the effects of organisational behaviour on psychological optimality and performance are researched.

The relevant sub fields of industrial psychology included in this research are growth psychology, organisational psychology, and psychometrics.

1.5.2.2 Growth psychology

Growth psychology is the umbrella concept for all theories and concepts referring to growth and psychological development. The optimisation model of Cilliers is a creative synthesis of psychological growth theories (Cilliers & Wissing, 1993:5-10), and is in agreement with the salutogenesis paradigmic concepts of Antonovsky, Rotter and Bandura in this research.

Growth psychology is concerned not with the sick side of human nature (psychological illness) but with the healthy side (psychological well-being). The purpose of psychological growth is not to study a person with neurosis and psychosis, but to study the vast human potential for actualising and fulfilling one's capabilities and of finding deeper meaning in life. In short growth psychology attempts to expand, enlarge, and enrich knowledge about the human personality (Schultz, 1977:1).

In this context, Strümpfer (1990:265) suggests that growth psychology relates to one's using whatever potential is available as a catalyst for growth and well-being. Maslow, (1971), who is included among the growth psychologists, has based his theory of self-actualising psychology on the healthy, creative individual, stressing man's desire to achieve to his/her highest potential. According to Maslow (1971) the individual's striving for growth culminates in supreme development and the use of all of his/her capabilities and qualities. He refers to self-actualisation as "growth motivation" and its attainment means increased mental health. Furthermore, Maslow (1962) associates self-actualisation with "heightened spontaneity, problem centredness, acceptance of self, a more democratic character and high creativity".

1.5.2.3 *Organisational psychology*

The field of organisational psychology has its foundations primarily in the widely publicised investigations conducted at the Hawthorne plant of the Western Electric Company where teams and particularly the team leader played a significant part in increasing the performance of the work group by promoting cohesion and involvement in the work group (Roethlisberger & Dickson, 1939). This led to further research in work group behaviour, management styles, participation in decision and feedback. Later research by Trist, (1981:9) indicated how self-managed teams at the Haighmoor Coal mine contributed to social bonding and improved productivity amongst workers in mechanised short wall mining operations.

1.5.2.4 *Psychometrics*

This branch of psychology relates to the principles and practices of psychological measurement such as the development and standardisation of psychological tests and related statistical procedures (Plug, Meyer, Louw & Gouws, 1986). Psychometrics puts researchers in a position to measure behaviour in various forms offering different explanations for inter- and intrapersonal functioning. In this research a number of questionnaires are used to measure an individual's perceptions of climate, supervisory

support and team work (team building variables), and certain personal characteristics of psychological optimality (salutogenesis) and performance through self-appraisal.

1.5.3 The market of intellectual resources

The theoretical beliefs, which are described here, are testable statements about the what (prescriptive) and why (interpretative) of human behaviour and social phenomena. These would include all statements which form part of hypotheses, typologies, models, theories and conceptual descriptions (Mouton & Marais, 1994:21).

1.5.3.1 *The research hypothesis*

The central hypothesis of the research can be formulated as follows:

There is a relationship between the worker's team building profile, his/her salutogenic profile and his/her work performance profile.

1.5.3.2 *Theoretical models and theory*

In this research the theoretical models will be based on the theory of organisational climate, supervisory support and team work (teambuilding variables), salutogenesis as the basis of psychological optimal functioning and performance as measured by self-appraisals. This will provide a framework from which correlations depicting the inter-relationships between variables will be evaluated in developing a performance model.

- **The team building profile.** The theoretical model and the theory are based on the research of Litwin and Stringer (1968), Prakasam (1986:51-55) and Burke and Litwin (1992:523-545). The team building profile comprises measurable properties of the organisation, and an employee's perceptions of these, determine the psychological atmosphere of the organisation which has an effect on the behaviour and performance of the employee. The significant measurable

properties are the directive and the interactive dimensions.

- **The salutogenic profile.** The theoretical model and theory is based on the salutogenic paradigm which was first described by Antonovsky (1979:182). Its emphasis is on the origins of health and well-being. There are a number of psychologists referred to as third force and optimal psychologists who have extended the scope of this paradigm. The underlying strength of this model are the coping and learning capabilities of an individual.
- **The work performance profile.** The theoretical model and theory are based on the research of Cascio (1991:75), Barrick and Mount (1993:111-118) and Argyris (1970) who maintain that to be able to assess performance equitably there needs to be a balance between behaviour and outcome performance measurement criteria. Furthermore, the model is also based on the premise that self-appraisal is an acceptable method of performance measurement (Lane & Herriot, 1990) because self-ratings of performance represent judgements of self-efficacy.

Whilst the work performance profile is treated as a separate concept it forms an integral part of the salutogenenic profile in this research.

1.5.3.3 *Conceptual descriptions*

The relevant underlying concepts of the research are discussed:

- **Directive team building**

Directive team building is one of the key concepts reflecting the organisational properties in the team building profile. The directive properties relate to rules and norms of the organisation and in terms of this research are represented by role clarity, standards, organisational structure, direct supervision and satisfaction with the job.

These properties have been identified in research by Litwin and Stringer (1968:67-68) and Prakasam (1986:52) and they contribute significantly to the measure of the psychological atmosphere of the organisation.

- **Interactive team building**

Interactive team building is a key concept in the team building profile. It reflects the interpersonal relationship properties of team building. In this research, significant interactive properties have been identified such as communication, conflict handling, reward and recognition, supervisory support and co-operation within and between teams. Burke and Litwin (1992:523) refer to the impact of leadership and culture on relationships within the organisation.

- **Salutogenic strengths**

Antonovsky (Cooper & Payne, 1991:67) refers to those orientations within the salutogenic paradigm as being the salutogenic strengths. These relate to the amount of meaning an individual derives from the environment (sense of coherence); the amount of control an individual is able to exercise over his/her environment (internal locus of control) and the confidence that an individual has in him-/herself to complete a task (self-efficacy). The stronger these orientations the more complete a person feels within him-/herself and the better that person is able to cope with stressors and learn.

- **Performance criteria**

It is important to identify the criteria that will measure performance accurately. Cascio (1991:50) maintains that both behavioural and outcome criteria are important. In this research a balanced set of criteria have been identified and form the basis for measuring an individual's performance on the mine.

- **Self-appraisal of performance**

Self-appraisal is regarded as being very important because it has been established that there is a significant relationship between how one rates one's performance and one's level of self-efficacy (Lane & Herriot, 1990:79). The relationship is so significant that one's self-appraisal of performance forms part of the salutogenic construct in this research. Garland (1988:383) suggests that self-appraisal is the cognitive mediator between a person's perception of his/her performance and his/her level of self-efficacy.

- **The personality profile of an optimal functioning person**

According to Cilliers (1988:16) the characteristics of an optimal functioning person are numerous and can be meaningfully classified as the intra-and interpersonal characteristics of the person. These will be developed as part of the profiles and integration in this research.

COMMENT

Whilst on the topic of theoretical models and theory, it is important to note Rotter's views. According to Rotter (1990:489-493) the sound theoretical basis of constructs and concepts is extremely important because this leads to an exactness of definition. He states (Rotter, 1990) "the heuristic value of a construct or concept is based on the precision of its definition". Rotter (1990) suggests that when defining a construct or concept it should be done in language that is careful and precise. He maintains that the value of a construct or concept is enhanced if it is imbedded in a broader theory of behaviour. For example, the concept locus of control originated both from theoretical and clinical concerns with social learning theory. In relation to this what concerns Rotter (1990) is that many psychologists are inadequately trained in theory, "not the memorising of some principles or hypotheses, but in understanding the characteristics of good theory and bad theory, principles of theory construction, and the use of theory to tackle applied problems". Researchers need to fully understand the constructs and

concepts they are dealing with. If psychology is to advance in its understanding of human behaviour it needs to build on past research and, according to him, researchers should avoid using new terms for old concepts thereby ignoring the research theory originally accumulated. For instance Kirsch (1985:824) has illustrated the value of such analysis in his discussion of antecedents of the concept self-efficacy as have Zuroff and Rotter (1985:7) in their history of the expectancy construct.

Thus Rotter (1990) warns that unless psychologists concentrate on the development and use of proper theory (not fads), the genuine progress in psychology will suffer. In this regard E.R. Guthrie, in his 1946 presidential address to the American Psychological Association (Rotter, 1990:493), stated "Unless psychologists maintain an interest in general theory the fields of psychology will increasingly become independent collections of undigested facts".

The value of the above has directed the researcher into ensuring that the constructs and concepts, in this research, are well founded; and that the research is based on sound theory.

1.5.4 Methodological assumptions

Methodological assumptions are beliefs concerning the nature of social science and scientific research. Methodological beliefs are more than methodological preferences, assumptions, and presuppositions about what ought to constitute good research. There is a direct link between methodological beliefs and the epistemic status of research findings (Mouton & Marais, 1994:23). The following main epistemological assumptions are the methodological assumptions that affect the nature and structure of the research domain and these relate to methodological choices, assumptions and suppositions that make for good research.

In this research the overall hypothesis, namely that there is a relationship between the team building profile and the salutogenic profile (incorporating the work performance

profile), is being tested.

1.5.4.1 *Sociological dimension*

The sociological dimension conforms to the requirements of the sociological research-ethic which makes use of the research community for its sources of theory development. Within the bounds of the sociological dimension research is experimental, analytical and exact, since the issues that are being studied are subject to quantitative research and analysis (Mouton & Marais, 1994:11). This research focuses on the quantitative analysis of variables and concepts as described in chapters 5 and 6.

1.5.4.2 *The ontological dimension*

The ontological dimension of research encompasses that which is investigated in reality. It relates to the study of human activities and institutions whose behaviour can be measured. This research measures properties of team building that affect an individual and groups of individuals. Although an individual is measured, the data can also apply to teams. The research is looking at the individual as an employee of the mine and it researches aspects of his/her behaviour.

1.5.4.3 *The teleological dimension*

This dimension suggests that the research should be systematic by nature and goal directed. It is important therefore to state the problem being investigated and relate this to the research goals. The research goals are explicit in this research which are to identify those properties in team building that promote psychological optimal functioning and striving for performance. Furthermore in practical terms the teleological dimension looks to furthering the field of industrial psychology by providing it with knowledge that can enable a person to function optimally in an organisation.

1.5.4.4 *The epistemological dimension*

According to Mouton and Marais (1994:14) this dimension relates to the quest for truth. A primary aim of research therefore in the social sciences is to generate valid findings which approximate reality as closely as possible. This research attempts to achieve this truth through a good research design and the achievement of reliable and valid results (as outlined in 1.6.2).

1.5.4.5 *The methodological dimension*

The methodological dimension of research according to Mouton and Marais (1994:5-17), relates to the methods and techniques employed and the rationale that underlies the use of such methods. It also relates to the logic of the decision making process. The methodological process will be described later. Meanwhile the research relates to the data collection through questionnaires, data analysis through statistical techniques, and inference through deductive reasoning.

For the purposes of the empirical research the following concepts are relevant:

reliability, alpha coefficients, item-test correlations, correlation coefficients, validity, exploratory factor analysis, confirmatory factor analysis and path analysis.

1.6 **RESEARCH DESIGN**

The research design will first discuss the types of research and thereafter the reliability and validity aspects.

1.6.1 **Types of research**

The different types of research will be discussed with regard to the role they play in this research.

1.6.1.1 *Exploratory research*

According to Mouton and Marais (1994:42) exploratory research aims at gathering information from a relatively unknown field. The key issues are to gain new insights, establish central concepts and constructs, and then to establish research priorities. This research is exploratory in that it compares a number of concepts and identifies characteristics of a team building profile, the salutogenic and work performance profile and the personality profile of the optimal functioning individual within each profile. Through quantitative methods attempts will be to identify the new constructs. Through the steps of the research methodology every attempt will be made to make this a valid research. The development of a performance model in this research forms part of its exploratory nature.

1.6.1.2 *Descriptive research*

A descriptive research aims at investigating certain domains in depth (Mouton & Marais, 1994:43-44). Its purpose is to classify systematically the relationships between variables in the research domain. The overriding aim is to describe issues as accurately as possible. This research meets the requirements of a descriptive research by describing the characteristics of team building, salutogenesis and work performance accurately, and by defining the constructs and identifying them through quantitative techniques. Use is also made of correlations to determine the relationship between variables.

1.6.1.3 *Explanatory research*

An explanatory research goes further than merely indicating that relationships exist between variables (Mouton & Marais, 1994:45). It indicates the direction of the relationships in a causal relationship model. The researcher seeks to explain the direction of relationships. He seeks to explain the relationship between team building, salutogenesis and work performance through path analysis.

Thus this research fulfils the requirements of the types of research as outlined above.

1.6.2 Validity

Research needs to be both internally and externally valid. Proper research design will ensure that this will happen. According to Mouton and Marais (1994:51), for research to be internally valid the constructs must be measured in a valid manner, the data measured must be accurate and reliable. The analysis should be relevant to the type of data collected, and the final solutions must be adequately supported by the data. The researcher follows these principles. For the research to be externally valid, the findings must be applicable to all similar cases. The findings must be valid for similar studies other than the one under review (Mouton & Marais, 1994:50). Validity can be illustrated as such:

Internal Validity (Mouton & Marais, 1994:51)

Conceptualisation	Theoretical validity
Constructs	Construct validity
Operationalisation	Measurement validity
Data collection	Reliability
Analysis/interpretation	Inferential validity

1.6.2.1 *Validity with regard to the literature review*

In this research validity is ensured by making use of literature that relates to the nature, problems and aims of the research. Certain of the constructs, concepts, and dimensions that form part of the team building, salutogenesis and work performance profiles in this research are to be found in the relevant literature. Therefore, there has not been a subjective choice of constructs, concepts and dimensions. There has also been a concern to ensure that the concepts and constructs have been ordered in a logical and systematic manner. This contributes to the meaningful formulation of the profiles. Every

attempt has been made to search for and make use of the latest literature sources, although a number of the classical sources have also been referred to, because of their relevance to the topics.

1.6.2.2 Validity with regard to the empirical research

The empirical research is deemed to be valid for a number of reasons. In the discussions of the measuring instruments, it will be shown that the salutogenic questionnaires have been validated by their authors. The questionnaires developed specifically for this research have been found to be valid through factor analysis and construct validity. The choice of the sample from the mine is representative of the job levels and occupations for the particular sample. The measurement of sampling adequacy indicated that the sample is valid here.

Research of a general universal interest stresses external validity (Mouton & Marais, 1994:53). In the research external validity is ensured because the results can be, and already have been, applied to similar universal situations.

1.6.3 Reliability

Reliability is ensured by structuring the research model in such a way that nuisance variables are limited.

Reliability of the literature review is ensured when other interested academics have access to the literature sources and to the theoretical views in the literature.

Reliability of the empirical research is ensured when a truly representative sample is used. This research makes use of a representative sample of mine employees representing job levels and disciplines.

1.6.4 The unit of research

The unit of research, in this instance, is the individual. Babbie (1979, in Mouton & Marais, 1994:38) makes it clear that where the individual is the unit of analysis then the researcher focuses on the characteristics and the orientations of individual behaviour. This research focuses on the orientations of an individual as identified in team building, salutogenesis and work performance respectively. The purpose is to integrate these orientations into a meaningful performance model for an organisation and a personality profile for an optimal functioning individual.

1.7 RESEARCH METHODOLOGY

This research will be conducted in two phases each with different steps.

PHASE 1: LITERATURE REVIEW

Step 1 The Team Building profile

A critical evaluation will be made firstly of theories relating to the understanding of the properties of organisational climate, secondly of the properties relating to supervisory support as an important determinant of individual behaviour and performance and thirdly of the properties of team work.

The evaluation of the above will be made within the context of the recent and classical literature on the topics, taking into account the important concepts. These will form the basis of the development of the team building profile which becomes the independent variable. Suitable measuring instruments will be selected and developed to measure the properties relating to the important concepts within the team building profile. The team building profile will reflect the properties which comprise team building and the personality profile of the optimal functioning team member.

Step 2 The Salutogenic profile

A critical evaluation will be made of the research relating to the salutogenic constructs of Antonovsky, Rotter and Bandura.

This evaluation will take place through the review and analysis of the recent and classical literature on the subject with a view of developing a profile of the properties of salutogenesis and the personality profile of the optimal functioning individual which becomes the dependent variable in the research. An analysis of the concepts and constructs within salutogenesis will determine the choice of the most appropriate measuring instruments to achieve this aim.

Step 3 The Work Performance profile

A critical evaluation will be made relating to the development of performance criteria and the use of self-appraisal for the evaluation of an individual's performance.

Recent literature will be reviewed on performance criteria and self-appraisals, to determine the important concepts that lead to the development of the work performance profile which forms part of salutogenic thinking. As such the work performance profile also forms part of the dependent variable (the salutogenic profile) in this research. Based on the literature review a suitable self-appraisal questionnaire will be developed to measure the performance criteria. A work performance profile will be established depicting the key properties and the personality profile of the optimal performing individual.

Step 4 The integration of the profiles

This step relates to the theoretical integration of the profiles for optimal team building, psychological optimality (salutogenesis) and optimal work performance into the performance model, and the personality profile of an optimal functioning individual within the context of the performance model.

PHASE 2: THE EMPIRICAL STUDY

Step 1 Determination and description of the sample

The population will be identified and the sample will be determined by selecting mine employees, representative of certain job levels and disciplines on the mine.

Step 2 Choosing and motivating the psychometric battery

Questionnaires which measure the concepts of the independent and the dependent variables of the research will be selected and developed and put together as a battery of measurement.

Step 3 Data collection

The data will be collected from each individual in group settings, who will be required to respond to the questionnaires, by inputting responses through electronic key pads into a computer.

Step 4 Statistical processing of the data

The analysis of the data is handled through the use of the SAS, LISREL and SPSS statistical packages.

The statistical procedures relevant to this research include:

- Item-test reliability and Cronbach's alpha to test reliability of the measuring instruments.
- Factor analysis to determine the factor structures of the questionnaires.

- Intercorrelations to determine the relationships between variables and constructs in the research model (Kerlinger, 1986:188).
- Exploratory factor analysis to determine the common factor structure of the 28 observed variables measured in the model (Kerlinger, 1986:569).
- Confirmatory factor analysis to test the hypotheses relating to the model structure (Hughes, Price & Marrs, 1986:128).
- LISREL analyses for testing the structure of the model comprising the team building, salutogenesis and work performance profiles and the path analysis between these profiles leading to the confirmation of the performance model in this research (Jöreskog & Sörbom, 1997).

Step 5 Formulation of hypotheses

In order to operationalise the research, empirical hypotheses will be formulated from the research hypothesis (ref 1.5.3.1) to test the following:

- The relationships of concepts within each profile in order to establish their existence (one hypothesis relates to team building; one hypothesis relates to salutogenesis; one hypothesis relates to relationships within salutogenesis and work performance because of the strong relationship between the two).
- The relationships between team building, salutogenesis and work performance.
- The causal relationships between team building (the independent variable) and salutogenesis and work performance (the dependent variables).
- The relationships between an individual's salutogenic and performance personality profiles, and his/her personality profile as a team member.

Step 6 Reporting and interpretation of the results

Results will be reported in tables and figures which will provide the relevant statistical data. Interpretations will be made which will bring clarity to the results.

Step 7 Integration of the research

The findings relating to the literature review will be integrated with the findings from the empirical research as an integration of the overall findings of the research.

Step 9 Conclusions, recommendations and shortcomings

The final step relates to conclusions based on the results and their integration with the theory. Recommendations are made in terms of organisational behaviour, behaviour and personality change, performance management, training and development, career psychology, organisation development, strategic leadership, human resources systems and policies, health psychology and stress management. The shortcomings of the research are discussed.

1.8 CHAPTER DIVISION

The chapters will be presented in the following manner:

Chapter 2: The team building profile

The purpose of this chapter is to define each of the concepts, (organisational climate, supervisory support and team work) describe the dimensions of each and consider each in organisational context. Finally, the optimal team building profile will be defined and the personality profile of an optimal performing team member will be developed.

Chapter 3: The salutogenic profile

The research relates to the contributions of Antonovsky, Rotter, and Bandura to salutogenesis. Each will be discussed with regard to the relevant theoretical framework; the characteristics relating to the development of each one; and each will be discussed within the organisational context. The chapter will conclude with the profile of salutogenesis and the personality profile of the optimal functioning individual.

Chapter 4: The work performance profile

This chapter relates to the definitions and development of performance criteria, the development of performance criteria for this research, and the incorporation of self-appraisal of performance as an important factor for performance measurement, linking performance with salutogenesis. The chapter concludes with an optimum work performance profile, and the personality profile of an optimal performing individual.

Integration of the literature review

The purpose of the integration is to combine the main theoretical findings of the research into an integrated model representing a model of optimum performance in organisations (the performance model and the personality profile of an optimal functioning individual within this model).

Chapter 5: The empirical study

The purpose is to describe the empirical research. Firstly the aims of the empirical research are given, thereafter the steps taken in terms of describing the sample, the questionnaires, data collection, the statistical processing of the data is reviewed and the research hypotheses are formulated.

Chapter 6: Results of the research

The purpose of this chapter is to test the research hypotheses using intercorrelations, exploratory factor analyses, confirmatory factor analyses and path analysis. Descriptive statistics providing means and standard deviations are given. Cronbach alpha's and item-test correlations are given to test the reliability of the measuring instruments. The instruments are factor analysed to explain the structure of each. The integration of the team building and salutogenic and work performance concepts is given. The chapter concludes with the integration of the literature profiles and the empirical profiles.

Chapter 7: Conclusions, recommendations and shortcomings

The purpose of this chapter is to reach conclusions from the integration of the results. Recommendations are also given for industrial psychology as listed in step 9, on page 30. Lastly shortcomings of the research are discussed.

1.9 CHAPTER SUMMARY

The background and motivation for the research, the aim of the study, the research model, paradigm perspectives, theoretical research, its design, and methodology, research hypotheses and the method were all discussed in this chapter. The motivation for this study is based on the fact that no known research has been conducted to assess the relationships between team building, the salutogenic strengths of Antonovsky, and work performance. The research sets out to evaluate critically these relationships based on sound research methodology.

CHAPTER 2

THE TEAM BUILDING PROFILE

The aim of this chapter is to create a team building profile of the directive and interactive dimensions of organisational climate, supervisory support and team work and to determine the personality profile of the optimal functioning team member. This represents the first step of phase one of the research methodology (refer 1.7).

To meet this aim, the following method will be used. First, an analysis will be made of organisational climate in terms of its definitions, dimensions, and organisational context. Second, an analysis will be made of supervisory support in terms of its definitions, dimensions and organisational context. Third, an analysis will be made of team work in terms of its definitions, dimensions, and organisational context. Finally, a team building profile and the personality profile of an optimal functioning team member will be developed.

2.1 ORGANISATIONAL CLIMATE

This section on organisational climate (referred to as climate) will include a section on the definitions provided by researchers, a description of the dimensions used in describing climate and climate in the organisational context.

2.1.1 Definition of climate

The definition of climate according to Gelfand (1972), Likert (1961), Litwin and Stringer (1968), Prakasam (1986) and Taguiri and Litwin (1968), makes mention of measurable properties (dimensions), an individual's perceptions of these and the psychological atmosphere of the organisation. According to Nasser (1975:64) much work has been directed toward determining the factors which form the basis of climate and the measurement of climate in different sectors of the business environment.

a) Measurable properties (dimensions)

The determinants of climate according to Kline and Boyd (1991:307) are the structural characteristics of decision making, formal policies, specialisation of tasks and the interactive characteristics of communication and sharing of information.

Litwin and Stringer (1968:1), the forefathers of the concept of climate, formulated what is possibly the most acceptable definition of climate. For them climate is the sum total of a set of measurable properties in the work environment. "Organisational climate refers to a set of measurable properties of the work environment, perceived directly or indirectly by the people who work in this environment and is assumed to influence their motivation and behaviour".

Likert (1961) sees properties such as organisational structures, objectives, management practices, behaviour and the needs of an employee, as embracing the dimensions relevant to the measurement of climate.

Taguiri and Litwin (1968:27) offer the following definition of climate:

"Organisational climate is a relatively enduring quality of the internal environment of an organisation based on a set of measurable characteristics of the organisation. It is real and experienced by its members and it influences their behaviour".

Gelfand (1972, in Nasser, 1975:50) describes climate as a "set or cluster of expectancies". According to him climate represents a measure of the characteristics of environments that are perceived directly or indirectly by an individual in that environment.

Gelfand (1972) maintains that climate:

- presupposes a set of motivational determinants;

- allows the categorising of climate “types” in each environment for comparative purposes.

According to Prakasam (1986:51-55) climate is a “set of measurable properties of the work environment perceived directly or indirectly by the members influencing their work and satisfaction”. There are different factors operating in the work environment and an employee’s perceptions of each of these factors can be assessed separately. There are numerous climate dimensions that can be measured.

b) An individual’s perceptions of measurable properties

According to Nasser (1975:52), central to the Litwin and Stringer (1968:1) definition of organisational climate, is the issue of an individual’s perceptions – the way in which the employee views the organisation. Whilst one could argue that perceptions are purely a subjective matter, a counter argument is that cognisance needs to be taken of the role which the organisation plays in causing a colouring of these perceptions.

Likert (1961) maintains that the organisation’s variables have an impact upon an employee and determine his/her individual perceptions. These perceptions lead to cognitive orientations, to motivational forces, to attitudes and those of an employee are important determinants of behaviour.

According to Burke and Litwin (1992:523), climate is defined as “the collective current impressions, expectations, and feelings of the members of local work units, all of which in turn affect members’ relations with supervisors, with one another, and with other units”. Implicit in this definition are the perceptions of an employee and the behavioural effect of the perceptions on others.

Day and Bedeian (1991:590) maintain that climate has generally been defined “as a set of attributes specific to a particular organisation and operationalised in terms of individual member perceptions”. Thus, according to them, inherent in most definitions

is the notion that climate influences "member behaviour".

Prakasam (1986:51) defines climate as "the shared perception of employees who live and work in the organisation. It is the sum of the individual perceptions regarding the organisational procedures, policies and practices".

c) The psychological atmosphere of the organisation

The environment has long been recognised as a significant source of influence of human behaviour (Meyer, Moore & Viljoen, 1990:283-284). However, according to Pritchard and Karasick (1973:128) little effort was made to explore the influences of the climate on the behaviour of an individual. These authors suggest that climate is synonymous with the psychological atmosphere of an organisation and it is an individual's perceptions of the psychological atmosphere that influence behaviour. In support of this, Kline and Boyd (1991:306) maintain that the set of variables used to measure climate is associated with what they refer to as the atmosphere of the workplace and they too suggest that this atmosphere influences behaviour.

Litwin and Stringer (1968) make an important observation. Just as climate is one of the major determinants of motivation and behaviour, research findings indicate that the manager is one of the major determinants of climate. His actions, personality and leadership style all act to generate certain patterns of motivation and this framework allows one to trace some of the important causal relationships of the psychological atmosphere. x ✓

Some of the first studies of psychological climate of an organisation were initiated by Kurt Lewin in the 1930's. Lewin (1951:241) maintains that: "To characterise properly the psychological field of the organisation, one has to take into account such specific items as particular goals, stimuli, needs, social relations, as well as more general characteristics of the field as the atmosphere (for instance the friendly, tense or hostile atmosphere). These characteristics of the field as a whole are as important in

psychology as, for instance, the field of gravity for the explanation of events in classical physics. Psychological atmospheres are empirical realities and are scientifically describable as facts". In Lewin's theory of motivation the concept of atmosphere or climate was an essential functional link between the person (p) and the environment (e). Organisational climates to Lewin are scientifically describable facts and empirical realities (Litwin & Stringer, 1968:37).

Argyris (1972), Gelfand (1972), and Knobbs (1975) (in Nasser, 1975:64) are among numerous authors who point out that the nature of the business, the culture and the traditions and the "type" of people involved in the business, the surrounding socio-economic environment and rate of economic development are some of the variables which weigh heavily in determining the climate that exists in a particular organisation. By doing so they give an idea of the origins of the psychological atmosphere of the organisation.

Prakasam (1986:51) maintains that organisation climate represents the psychological atmosphere of the organisation consisting of individual opinions of micro events that happen over a period of time.

COMMENT

In the opinion of the researcher, therefore, climate relates to those factors in the work environment which are measurable and empirically real and which determine the perceptions of an employee according to his/her prevalent needs, biases and prejudices, and which affect the motivation and behaviour of such an employee. Organisational climate establishes the overall psychological atmosphere of the organisation. Litwin and Stringer (1968:40) suggest that factors such as management practices, decision making processes, formal organisational structures and social structures are real issues in this regard.

2.1.2 The dimensions of organisational climate

Climate dimensions have been conceptualised by a number of authors who have researched the topic. Pritchard and Karasick (1973:129) maintain that attempts to generate taxonomies of climate have generally resulted in a small number of dimensions being identified. They maintain that the psychological environment of an organisation is complex and it is doubtful that a few dimensions can adequately tap this complexity. Climate measures, that tap only a small number of dimensions, ought to be seen as partial measures of the psychological environment. With this in mind, the researcher has reviewed the literature to determine the critical dimensions that ought to be included in climate measurement and as dimensions in this research.

The next section will review the directive and interactive dimensions of climate.

2.1.2.1 *The directive and interactive dimensions of climate*

The dimensions of climate which comprise both structural and social properties, will for the purposes of this research, be referred to as the directive and interactive dimensions. These are inherent in the classifications provided in this section.

Myers (1970, in Nasser, 1975:64) suggests that the following factors remain relatively constant and provide for the characteristic climate of an organisation:

- 1) growth rate
- 2) delegation
- 3) innovation
- 4) authority orientation
- 5) status
- 6) communication
- 7) stability.

Litwin and Stringer (1968:67-68) identified a number of critical dimensions for the measurement of climate. Some of these have been included in the dimensions of climate in this research. They delineated eight broad dimensions of climate: structure and constraint, individual responsibility, warmth and support, reward and punishment, conflict and tolerance for conflict, performance standards and expectations, organisational identity and group loyalty and risk and risk-taking. Of practical importance, they have constructed a series of scales to measure the perceptions of an individual regarding these organisational dimensions (Gelfand, 1972:110). Gelfand (1972) refined the original instrument and adapted it for South African conditions. This refinement was intended to move the measurement from the essential subjectiveness of the original measure towards the establishment of a more accurate and objective measure of organisational climate. Subjecting the original Litwin and Stringer (1968) questionnaire to multiple correlations and scientific factor analysis, Gelfand (1972) reduced the number of items from the original 50 to 40 and the number of dimensions from nine to seven (Nasser, 1975:73).

The original nine dimensions proposed by Litwin and Stringer (1968) were:

- 1) structure
- 2) responsibility
- 3) reward
- 4) risk
- 5) warmth
- 6) support
- 7) standards
- 8) conflict handling
- 9) identity.

Gelfand's (1972:110) final factorial structure of climate accurately and objectively identified the following seven factors:

- 1) structure
- 2) affiliation
- 3) involvement
- 4) bureaucracy
- 5) support
- 6) standards
- 7) risk-taking.

Morse and Lorsch (1970:120) also list important characteristics of organisational climate: structural orientation, distribution of influence, subordinate – superior relations, colleague relations, time orientation, goal orientation and management style. Clearly, their list of dimensions specifies both structural/directive and social/interactive elements.

Prakasam (1986:52) used the following dimensions as a basis for establishing the psychological atmosphere of the organisation climate. His dimensions and descriptions are listed below:

- 1) **Conformity:** Measures the employee's perception about the organisation's emphasis on strict adherence to rules and regulations.
- 2) **Sharing in Decision Making:** Measures how far an organisation's member feels that he/she is being consulted while unit level decisions are made, especially those which affect his/her role and work.
- 3) **Supervision Task Orientation:** Refers to the extent to which a supervisor puts emphasis on meeting deadlines and consciousness of task accomplishments; and the initiative and push given by the supervisor in task fulfilment.
- 4) **Supervision: People Orientation:** Refers to the supervisor's concern for colleagues and subordinates. This includes the extent to which the supervisor is sensitive and appreciative of a subordinate's difficulties; and the extent of

genuine concern for each subordinate.

- 5) Supervision: Bureaucratic Orientation: The extent to which a supervisor keeps aloof from his/her subordinates. It is the psychological distance the supervisor tries to maintain above the subordinate.
- 6) Responsibility: The encouragement received by an employee for initiative.
- 7) Non-Financial Reward: The extent to which an employee feels that work will bring recognition and appreciation.
- 8) Promotion: The fairness of the existing promotion system as seen by an employee.
- 9) Team Spirit: The extent to which an employee is co-operative and friendly and the extent of mutual trust and confidence among employees.
- 10) Standards: The extent to which an employee feels that he/she is assigned challenging and demanding goals.

All the above are important directive and interactive dimensions which have an impact on the psychological atmosphere of an organisation.

Forehand and Gilmer (1964:361-382) maintain that measurable properties within the organisational environment influence behaviour. According to them these are: the physical properties of organisations, task relevant information available to the individual, the behaviour of other individuals, social interactions within the organisation and internally, the values, abilities and personality traits of the perceiver. They also suggest that size of the organisation, organisational structures, systems complexity, leadership patterns and clarity of goals have an influence on individual behaviour.

In terms of the change model developed by Burke and Litwin (Howard, 1994:76), day to day climate is the result of transactions in the workplace, some of which are directive and others interactive. These are the following:

- 1) Sense of direction (the effect of mission clarity).
- 2) Roles and responsibilities.
- 3) Standards and practices (the effect of managerial practices, reinforced by culture).
- 4) Fairness of rewards (the effect of systems, reinforced by managerial practice).
- 5) Focus on internal pressures and standards of excellence.
- 6) The structures in the organisation, with particular reference to levels of responsibility, decision making authority, and relationships.
- 7) Management practices, and how the human and material resources are dealt with in the organisation.
- 8) Systems, policies, and procedures that manifest themselves in the organisation's reward and control systems; goals and budgets.

An important dimension of climate is role clarity or the extent to which an individual needs role clarity in his/her job (Lyons, 1971:99). In this regard Lyons (1971:100) points out that some theorists have suggested increased motivation and satisfaction as benefits of lower specificity of organisational roles. Argyris (1960), Likert (1961), Hage (1965) and Frank (1963, in Lyons, 1971:99-110) suggest that lower specificity may be a condition for greater innovation. Taking Lyons' (1971:99) argument further, the concept of role clarity or ambiguity can be operationalised in at least two ways. First, it can refer to the presence or absence of adequate role relevant information due either to restriction of this information, or to variations of the quality of the information. This would be an operationalisation of objective role clarity. Role clarity or ambiguity can also refer to the subjective feeling of having as much, or not as much, role-relevant information as the person would like to have. Both types of measures of role clarity have been found to relate to job satisfaction and job tension.

Job satisfaction is a critical behavioural outcome, and an important dimension reflecting the psychological atmosphere of the organisation. Pritchard and Karasick (1973:127) reported that climate has an effect on job satisfaction. Kline and Boyd (1991:305) maintain that climate affects the satisfaction of high ranking employees.

Lyons (1971:100) suggests that job tension, as a behavioural outcome, is an important dimension reflecting the psychological atmosphere of the organisation. According to him, there are a number of dimensions that determine the extent to which an employee is bothered by events in the work place and these can be determined empirically. He states further that perceptions of the psychological atmosphere of the organisation are also responsible for the employee's propensity to leave the company. This makes it an important dimension to measure.

COMMENT

The directive and the interactive dimensions of climate were mentioned and the important behavioural dimensions of job tension, job satisfaction and propensity to leave the organisation.

The next section will discuss the choice of dimensions of climate for this research.

2.1.2.2 The choice of dimensions of climate for this research

Based on the above, the researcher has used specific dimensions to measure climate in this research. Fourteen dimensions each with five questions are chosen. These reflect the research of Lyons (1971), Litwin and Stringer (1968), Gelfand (1972) and Prakasam (1986) in so far as their research applies to the nature of the mining industry in South Africa.

The 14 dimensions of climate with their definitions used in this research are the following:

1 Decision making

The extent to which an employee perceives decision making in the organisation to be effective, and decisions to be taken on the correct levels. This includes the extent of the employee's involvement in the decision making process.

2 Organisational structure

The extent to which an employee thinks that the organisation is well structured, that he/she understands the structure and that events are ordered, planned and in place.

3 Role clarity

The extent to which an employee understands his/her role in the organisation and how to perform the work.

4 Job standards

The extent to which the organisation sets high standards of performance and which are realistic to achieve.

5 Conflict handling

The extent to which an employee is allowed to express his/her ideas, where constructive criticism is permitted and where arguments and disagreements are resolved in a mature manner.

6 Supervisory effectiveness

The extent to which an employee perceives that he/she can rely on his/her supervisor for guidance and assistance and that he/she has confidence in the supervisor's abilities

to supervise.

7 Communication

The extent to which an employee thinks he/she gets the information to carry out his/her work properly and that there is both upward and downward communication in the company.

8 Team Building

The extent to which an employee thinks that group members work well as a team and that there is co-operation with members of other departments in the organisation.

9 Responsibility

The extent to which an employee thinks that he/she has responsibility delegated to him/her; and the degree to which he/she is permitted to run the job on his/her own, without having to check with the supervisor constantly.

10 Reward

The extent to which an employee thinks he/she is being recognised and rewarded for good work; rather than criticised and punished. It also measures the employee's perceptions of the promotion and recognition systems in the organisation.

11 Job satisfaction

The extent to which an employee derives satisfaction from his/her work and the working environment.

12 Job tension

The extent to which an employee experiences being bothered about issues in the work place which are causing tension.

13 Propensity to leave

The extent to which an employee feels a desire to leave the organisation and seek work elsewhere.

14 Contribution to company profits

The extent to which an employee feels involved in setting the targets for his/her work section and that his/her ideas and opinions are taken into account in this regard.

All the above dimensions are of particular interest to managers on mines as suitable measures of climate in their organisations. A number of the above are interactive dimensions of climate; and others are directive dimensions. For the purposes of this research these have been identified as either interactive, directive, or a combination of interactive and directive:

Table 2.1: The interactive, directive or directive and interactive dimension of climate

Interactive	Directive	Directive/interactive
reward	structure	decision making
team building	role clarity	responsibility
contribution to profits	job standards	job tension
communication	supervisory effectiveness	propensity to leave
conflict handling	job satisfaction	

2.1.3 Climate in organisational context

This section shows how climate impacts on the behaviour and performance of an individual.

2.1.3.1 Behaviour

A number of authors reflected in this section suggest that climate has a significant impact on the motivation and behaviour of an employee in the organisational context. Climate is largely the product of the style of leadership; and organisational practices and procedures. These are significant in influencing the behaviour of an employee.

a) Leadership style

Sorensen and Savage (1989:325-354) indicate that an important ingredient for determining the psychological atmosphere or climate of the organisation is the leadership style. Research undertaken by them indicates two primary dimensions of a leader's communication style which are important, namely dominance and supportiveness. This helps in shaping the organisational climate. They found that, in a

situation that demands strong direction, both dominance and supportiveness were highly correlated with effectiveness.

Within the context of leadership, the view one has of climate is a reflection of the support one receives from one's supervisor. In research by Kottke and Sharafinski (1988:1075-1079), the authors found the employee's commitment to his/her work is influenced more by the perception of his/her supervisor's support for him/her than the perception of organisation support. Thus perceptions of supervisory support are important for employee commitment and motivation and form an integral part of this research.

Blake and Mouton (1969) suggest that the leadership style is a major determinant of behaviour in organisations. For Schein (1969) the leadership styles, which determine how decisions are made, influence behaviour. In this regard, Fiorelli and Margolis (1993:33) maintain that if the psychological atmosphere in the organisation is characterised by involving an employee in decision making and encouraging him/her to monitor his/her own work-progress, this engenders in the person a feeling of autonomy and personal control over his/her work. This increased sense of autonomy and control enhances an employee's commitment, leading to increased morale and higher performance. In examining a key issue in climate, McGregor (1967) points out that one of the most important conditions of growth and development of an employee centres around the opportunities to express his/her ideas and to contribute suggestions, before the superior takes action on matters that affect him/her. A leader is responsible for involving his/her subordinates in the decision making processes.

Litwin and Stringer (1968) were able to predict and control the motivational and performance consequences of various organisation climates. They found that leadership styles have a significant influence in creating distinct climates. The climates once created had significant effects on the participants in their research. They found a person in so called "achieving" climates (where the leader establishes clear roles, gives good support, sets achievable goals, provides good communication, and establishes

clear structures and standards), produced the best results.

Chatman (1989:333-329) debated the "person-situation" issue as a predictor of human behaviour in organisations. He maintains, in this regard, that the organisational value system affects the behaviour of an individual, and that the leader is responsible for demonstrating the value system. Weiss (1978:711) found that a person aligned his/her values with the values of the leader, if he/she found the leader to be considerate, competent and successful. The values of the leader set the tone for the psychological atmosphere of the organisation.

b) Organisational practices and procedures

Litwin and Stringer (1968:44) maintain that the organisation's procedures and practices such as levels of responsibility, reward systems, conflict handling procedures, the calculated risks that one can take and the support one obtains, are determinants of an individual's behaviour. Managers must know how different procedures and practices will stimulate (or fail to stimulate) a worker's needs, and how worker motivation can be enhanced. An understanding by each employee of these dimensions of the climate is important. In research involving a communication's network, Collins, Davis, Myers and Silk (1964:463-467) found that a subject who learned the relationship between his/her behaviour and the group reward mechanism was more satisfied than another who did not.

The extent to which the organisation has clearly defined roles has an effect on an individual's behaviour. Raven and Rietsma (1957:29-45) varied both the clarity of a laboratory group's goals and the clarity of the paths to those goals. Clarity of goals and paths was associated with greater satisfaction with the tasks. Baird (1969:15-21) reported on research using psychometric methods in a study of the roles of graduate students in ten academic departments. Analyses of the scales in one factor labelled conflict and lack of clarity, indicated that a student's scores in the scales of role stress and psychological withdrawal were higher and scores of morale were low when

professors appeared to be unclear and conflicting. Neel (1957:405-416) found that a worker who reported having inadequate information about plant activities, or about his/her own position in the eyes of a foreman, also reported more nervousness than a worker having a clear picture.

In certain instances an employee feels that organisational practices and systems do not support work objectives. In this regard Shepard (1969:185) reported a strong negative relationship ($r = -0.47$) for industrial workers between job satisfaction and an index of "perceived meaningless in work". The research measured the perceived connections of a worker's task to the jobs of others, and to the larger organisation (e.g. "to what extent do you know how your job fits in with other jobs in the company").

COMMENT

The behaviour of an individual is influenced by the impact of the leadership and the clarity and understanding of the organisation's practices and procedures.

2.1.3.2 Performance

This section reports on the relationship between an employee's perceptions of climate and work performance.

Day and Bedeian (1991:589) investigated whether perceived psychological climate interacted with personality variables in predicting work performance. They used the work orientation index developed from the California Psychological Inventory to predict work performance as a function of climate. Results from a series of hierarchical-regression analyses indicated that the better performance of a high-work oriented employee is related to a positive climate. Their findings support the views of Glick (1985:601), Joyce and Slocum (1984:721), where it has been argued that the psychological climate of an organisation has a strong influence on individual performance. Day and Bedeian (1991:595) maintain that a climate characterised by

warmth, support, reward, and accommodation, include the variables that have positive influence on performance.

Other research involving industrial organisations also found significant relationships between climate and performance. In this regard Vroom (1960) found significant relationships between job satisfaction and performance. According to Pritchard and Karasick (1973:128), the more consistent the climate in which a person works (innovation and loose supervision; or rules and close supervision) the greater the predictability of performance of such employee. On the other hand, the more inconsistent the climate the greater the negative effect on productivity.

The Burke-Litwin model (Howard, 1994:73) supports the notion that climate has a causal link with performance. In research conducted by Burke and Litwin (1992:523), causal linkages were established which indicate how performance in organisations, is linked to effective change processes from within and outside the organisation.

The model depicts the interrelationship between transformational factors (those organisational factors such as the mission and strategy, the organisation's leadership, and culture, as they respond to external forces), their effect on the transactional factors of the organisation (structure, systems, management practices, and climate) and how both the transformational and transactional factors in turn affect individual and organisational performance. The Burke Litwin model (1992), is based on the original work of Litwin and Stringer (1968), Taguiri and Litwin (1968) and clearly establishes the notion that climate factors have an impact on performance. The model, which can be identified to a large extent in the performance model developed in this research, is depicted in figure 2.1.

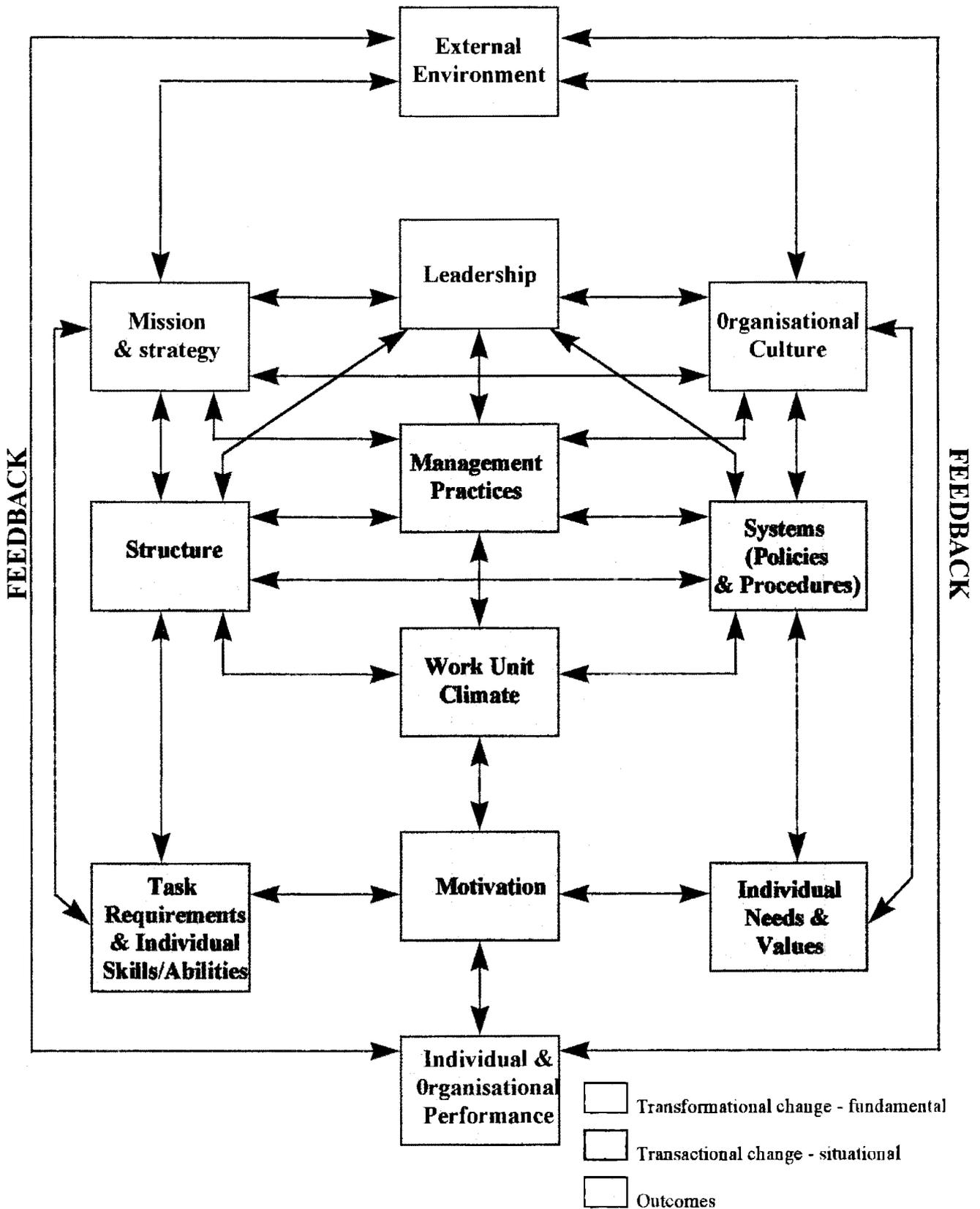


Figure 2.1: Illustration of the Burke-Litwin model showing the causal links between organisational culture (transformational), climate (transactional) and performance (outcomes) (Howard, 1994:73)

The model is clear. The transformational variables (external environment, leadership, mission and culture) have an impact on the transactional variables (structures, practices, policies and climate) and together they have an impact on the behaviour and the performance of an individual.

In line with the above, Forehand and Gilmer (1964:361) point out that the concept of climate involves three sets of variables: environmental variables such as size and structure of the organisation, personal variables such as attitudes and motives which the individual brings with him into the job situation, and outcome variables such as satisfaction, job motivation and productivity, which are jointly determined by external and internal variables. Climate may be seen as an interaction of environmental and personal variables in the pursuance of performance.

SUMMARY

Organisational climate has been well researched. It is the psychological atmosphere of the organisation. The determinants of the psychological atmosphere are distinct properties which have become measurable dimensions. The dimensions are directive (structural) and interactive (behavioural); and the perceptions that an employee has of the dimensions influences his/her behaviour and consequently performance. Climate affects the behaviour of an individual through the leadership style and organisation factors. Climate has an impact on performance.

2.2 SUPERVISORY SUPPORT

The section on supervisory support will include definitions provided by researchers, a description of the dimensions used in describing supervisory support, and supervisory support in the organisational context.

2.2.1 Definition of supervisory support

Supervisory support is part of an effective goal-setting strategy which includes a number of attributes (such as goal difficulty, goal specificity, participation, feedback on goal performance and goal commitment) (Vance & Colella, 1990:68-76). Supervisory support, therefore, is regarded as an important element in the goal-setting process and has been described as one of the most effective bases of work motivation (Ballantine, Nunns & Brown, 1992:208-213). Supervisory support impacts on goal acceptance, goal commitment and performance (Locke, Shaw, Saari & Latham 1981:125-152). It is defined as “a positive, constructive, and helpful attitude of supervisors or managers to their subordinates” in the attainment of the goals that they are required to achieve (Locke & Latham 1984). It forms part of the social support concept which is defined “as support accessible to an individual through social ties to other individuals, groups and the larger community” (Lin, Simeone, Emsel & Kuo, 1979:109). Indeed, various leadership theories have identified supervisory support as an important component of effective supervision in general (Blake & Mouton, 1982; Bowers & Seashore, 1966:235). Locke and Latham (1984, in Ballantine, Nunns & Brown, 1992) state that a supportive supervisor ensures that an employee understands his/her goals and helps and encourages an employee, who has difficulty in attaining goals, rather than resorting to punishment. Thus supervisory support is defined as “a positive, constructive, and helpful attitude towards employees”.

According to House (1981:156) supervisory support is the degree to which a supervisor is helpful in job-related matters. He argues further that supervisory support enhances work group cohesion, which acts as a buffer against job stress. Thus, according to House (1981), the social support provided by a supervisor increases the likelihood of an employee wishing to stay with the company.

According to Babin and Boles (1996:58) supervisory support is the degree to which an employee perceives that the supervisor offers him/her support, encouragement and concern. This support is measured by the provision of key resources (equipment and

training) which facilitate the performance of the employee.

Eisenberger, Huntington, Hutchinson and Sowa (1986:500-507) maintain that supervisory support relates to the employee's beliefs that the organisation values his/her contributions, and cares about his/her well being and supports him/her.

According to Likert (1967) supervisory support is concerned with building and maintaining a subordinate's sense of personal worth. Likert states further that the more often a supervisor is perceived as being supportive by a subordinate the greater will be the supervisor's impact on his/her behaviour and performance.

According to Taylor and Bowers (1972, in Ballantine, Nunns & Brown, 1992), social support which is allied to supervisory support, places emphasis on goal achievement, where a supervisor encourages a subordinate to give of his/her best to maintain high standards and to set an example of hard work. The setting and maintaining of high performance standards is related to appraisal support whenever the supervisor shows personal involvement in meeting group goals and provides necessary emotional support and concern for each employee. It is argued that a manager who provides the necessary support in the goal setting process, would be perceived as facilitating employee work objectives and as sharing important values with the employee. According to Locke (1968:157) this would result in increased satisfaction concerning the manner of supervision.

According to Jones and James (1979:201), general supervisory support involves the provision of social support by a supervisor and is defined as the extent to which a supervisor is aware of, and responds to, the subordinate's needs. Supervisory support also refers to the approachability of a leader, the interest he/she takes in the subordinate's problems and the ability to enhance a subordinate's sense of personal worth and importance.

In research addressing the impact of race on the supervisor-subordinate relationship, Jeanquart-Barone (1996:935) maintains that supervisory support refers to both the amount of career guidance and information, and the number of challenging work assignments that promote the employee's development. She found that "African American subordinates with white supervisors experience less supervisory support and development opportunities than African American subordinates with African American supervisors".

According to Michaels and Spector (1982, in Iverson and Roy, 1994:20) supervisory support refers to the consideration expressed by the supervisor for the subordinate's feelings, problems and input for decisions. Furthermore, supervisory support displays the human relations ability of a supervisor, and is characterised in terms of trust, respect, friendships and a deep concern for an employee's needs.

Cummins (1989:775) refers to supervisory support as having a number of dimensions attached to it. In the first instance it is concerned with building the esteem of each worker. It also represents a positive relationship in that support is given for problem solving and informational support.

2.2.2 The dimensions of supervisory support

In supervisory support there are dimensions which can be classified as directive and interactive. These are inherent in the classifications in this section.

2.2.2.1 The directive and interactive dimensions of supervisory support

In an attempt to integrate literature and research on the subject, House (1981), suggests that there are four aspects of social support. He defines the concept as an "interpersonal transaction" involving one or more of the following:

- emotional concern (liking, love, empathy)
- instrumental aid (goods or services)
- information (about the environment)
- appraisal (information relevant to self-evaluation).

According to House (1981), these four types of support constitute the minimum number which adequately reflect the complexity of social support. He specifically addresses supervisory support in his approach. He states that support from a supervisor involves "the provision of necessary resources (goods and services) and information required for coping with or solving problems that the individual may be facing. It also provides the empathy necessary to sustain emotional growth and development in the job and it provides guidance, standards and feedback relating to the achievement of work objectives". Provision of these elements of support would ensure that a subordinate understands what is required, and is provided with adequate tools and resources to address the constraints of the job. Ballantine, Nunns and Brown, (1992:212-213) argued that House's (1981) notions about supervisory support represent an appropriate conceptual basis for developing a measure of supervisory support.

Constable and Russell (1986:22) describe an important dimension of supervisory support as the ability to listen to subordinates' work-related problems, and to help a subordinate in getting the job done. Another dimension of supervisory support relates to the work behaviour of the supervisor such as he/she being concerned about doing his/her job properly.

Kottke and Sharafinski (1988:1076) conducted a factor analysis of surveys of perceived support. Their research showed that the following dimensions loaded significantly into the factor supervisory support. (The median factor loading was 0.84.) The relevant dimensions of supervisory support are seen in the following perceptions:

- 1) My supervisor values my contributions to the well-being of our department.
- 2) If my supervisor could hire someone to replace me at a lower salary he/she

would do so.

- 3) My supervisor appreciates extra effort from me.
- 4) My supervisor strongly considers my goals and values.
- 5) My supervisor wants to know if I have any complaints.
- 6) My supervisor takes my best interest into account when he/she makes decisions that affect me.
- 7) Help is available from my supervisor when I have a problem.
- 8) My supervisor really cares about my well-being.
- 9) If I did the best job possible, my supervisor would be sure to notice.
- 10) My supervisor is willing to help me when I need a special favour.
- 11) My supervisor cares about my general satisfaction at work.
- 12) If given the opportunity my supervisor would take advantage of me.
- 13) My supervisor shows a lot of concern for me.
- 14) My supervisor cares about my opinions.
- 15) My supervisor takes pride in my accomplishments.
- 16) My supervisor tries to make my job as interesting as possible.

The above (except in two instances) show the concern of a supervisor for his/her subordinates.

Bowers and Seashore (1966:235-263) maintain that supervisory support helps a subordinate achieve his/her goals through scheduling, co-ordinating, planning and providing resources. Latham and Locke (1979, in Steers & Porter, 1983:194-206) state that a supportive supervisor ensures that an employee has sufficient ability and knowledge to reach his/her goals. These are clearly directive dimensions.

Steers and Porter (1983:194-206) maintain that a supervisor exercises his/her support to a subordinate through his/her supervisory style, and this can influence performance. The outcome of this is emotional support and a caring attitude shown to a subordinate. They maintain too that a supportive supervisor also plays a central role in structuring the work activities of a subordinate. All this leads to motivation of a subordinate.

A supportive supervisor provides an employee with precise feedback on performance (House, 1981). This allows the employee to assess his/her performance against agreed goals and to adjust the level of effort accordingly.

2.2.2.2 *The choice of dimensions for this research*

A synthesis of the dimensions in the previous section together with the properties by House (1981) are used as the choice of dimensions for this research. These are:

- Information support (information about the job)
- Appraisal support (assistance in setting objectives)
- Instrumental support (assistance with resources)
- Emotional support (a caring attitude).

For the purposes of this research supervisory support will be a "stand-alone" factor and the dimensions are a combination of directive and interactive properties within the team building profile.

2.2.3 **Supervisory support in organisational context**

This section will indicate how supervisory support impacts on the behaviour and performance of an individual.

2.2.3.1 *Behaviour*

Behavioural outcomes can be construed as satisfying the needs of the individual so that he/she can perform work effectively.

Pretorius (1993:10) reports that supervisory support acts as a buffer for the effects of role conflict on emotional exhaustion. This implies that a supportive supervisor can help the individual cope better with role conflict (where it exists) so that only moderate levels

of emotional exhaustion may develop. As far as role conflict and role ambiguity are concerned, Randolph and Posner (1981:90) cited research that revealed negative correlations between role conflict and closeness of supervision, and support from supervisors. The authors found a significant positive correlation of 0.21 between supervisory support and group cohesion and a positive correlation of 0.23 between supervisory support and tolerance for conflict.

Research has found that supervisory support is positively related to more favourable job attitudes (Cobb & Kasl, 1977:77). A supervisor who increases a subordinate's participation in the decision making process minimises the effects of job stress in the work situation (Jackson 1983:3-19).

Cummins (1989:772) conducted research which indicated a negative relationship of 0.24 between job stress and supervisory support. Research by Constable and Russell (1986:25) showed that supervisory support was found to be negatively correlated with burnout amongst nurses in a medical centre. High levels of support amongst supervisors decreases feelings of emotional exhaustion. Research has been conducted examining the relationships between supervisory support and stress and strain (Orpen, 1982:375-384; Winnbust, Marcelissen & Kleber, 1982:475), indicating that supervisory support moderates the relationship between work-pressure and stress/strain.

In research conducted by Pretorius (1993:11), a significant positive correlation of 0.60 was found between supervisory support and involvement in decision making. A further finding of Pretorius (1993:13) is that involvement in decision making has a direct effect on work accomplishment ($r = 0.20$). Supervisory support has an indirect or positive influence on work accomplishment through involvement in decision making.

Research conducted by Cummins (1990:98) indicates that there is a significant positive correlation (0.37) between supervisory support and job satisfaction. This is confirmed in research by Agho, Meuller and Price (1993:1007) who reported a correlation between job satisfaction and supervisory support of 0.25.

Dienesch and Liden (1983:618) suggest that high quality supervisor-subordinate exchange is characterised by reciprocal levels of trust, interaction, support and rewards. Research indicates that the quality of leader-subordinate exchange is related to the often predictive outcomes such as a subordinate's performance levels (Liden & Graen, 1980:465). Steers and Porter (1983) suggest that organisational commitment can be enhanced by a supervisor who shows concern for his/her subordinates as well as engendering a climate of trust and support.

Steers and Porter (1983) maintain further that the supervisor is an important participant in the work environment, and he can significantly impact on behaviour. In particular, supervisory style can influence the performance of a subordinate. An important role is played by a supervisor in the motivation of an employee, since he/she exercises control over the desired rewards (e.g. bonuses, raises, feedback) and plays a central role in structuring work activities. As a result, a supervisor has extensive influence over the motivation of an employee, specifically over ability and freedom to pursue work goals.

2.2.3.2 *Performance*

Latham and Saari (1979:151-156) indicate that effective supervisory support results in the setting of higher, or more difficult goals. This is because effective supervisory support provides a subordinate with sufficient confidence to accept more difficult goals, which in turn leads to higher levels of performance.

According to Kottke and Sharafinski (1988:1075) commitment to organisational goals has traditionally been measured by focusing on the employee's identification with the organisation. However, Eisenberger, Huntington, Hutchinson and Sowa (1986:500) have suggested that an employee's commitment to objectives is affected by his/her perception of the organisation's commitment to the employees. This type of commitment consists of both a perception of a global, organisational commitment to employees, and more importantly a perception of support from the supervisors.

Research has shown that an employee values feedback on performance most from those closest to him/her. Greller and Herold (1975:244-256) found that an employee relies on his/her supervisor more than upon his/her co-workers or the organisation for information and feedback about the work. This is supported by Kottke and Sharafinski (1988:1076) who also showed that an employee relies more on feedback about his/her work from his/her supervisor rather than co-workers or the organisation. According to Locke and Latham (1979, in Steers & Porter, 1983:194-206) supervisory support provides an employee useful feedback on performance. Such feedback enables the employee to assess his/her actual performance against the performance standards set, and to adjust his/her level of effort accordingly (Bandura & Cervone, 1986:92-113). Consequently, the provision of supervisory support would be expected to enhance the effects of self-efficacy on performance.

There is some debate whether supervisory support has a main effect or a moderating effect on performance. Latham and Saari (1979: 151-156) maintain that supervisory support has a moderating effect on performance, rather than a main effect. It exerts a moderating or conditional effect on the relationship between for example, self-efficacy and performance.

According to Cogill (1986, in Ballantine, 1989) managerial leadership (including the support given by the manager) is one of the most important elements affecting the confidence and performance of an individual. Cogill's contention is consistent with the self-efficacy theory which identifies enactive mastery as an important source of efficacy (Bandura, 1982:122). A supervisor who ensures that a subordinate understands his/her goals, and assists in goal attainment, contributes to the subordinate's mastery experiences. As a result, effective leadership contributes to perceptions of self-efficacy. Therefore it is proposed that supervisory support impacts on the factors identified by Bandura (1984:287) that affect the relationship between self-efficacy and performance. This is an essential assumption in this research.

Likert (1967) argues that the more often a supervisor is perceived to be supportive by a subordinate, the greater will be the impact of the supervisor's behaviour on the subordinate's performance. Latham and Saari (1979:151-156) tested Likert's principle of supportive relationships and found significant differences between supportive and non-supportive supervisory conditions in terms of the subordinate's perceptions of goal difficulty. A subordinate with a non-supportive supervisor perceives goals to be more difficult than one with a supportive supervisor. Goals set by an individual in supportive conditions are higher than those set in non-supportive conditions. Likert (1967) argues further that the more often a supervisor is perceived as supportive by a subordinate, the greater will be the impact of the supervisor's behaviour on the subordinate's performance. Likert's (1967) principle of supportive relationships states that a supervisor should be perceived by a subordinate as a person whose primary concern is building and maintaining the subordinate's sense of personal worth – this is what enhances performance. Evidence in support of Likert's views consist mainly of correlational studies conducted by Carrol and Tosi, (1970:295) and Bowers and Seashore, (1966:235).

Work facilitation is the extent to which a leader helps a subordinate attain his/her goals through activities such as scheduling, co-ordinating and providing resources (Jones & James, 1979:201). According to Bowers and Seashore (1966:236) an effective supervisor helps a subordinate achieve his/her goals through activities such as scheduling, co-ordinating, planning and providing resources. It is therefore argued that work facilitation is related to instrumental support, which is aid in the form of goods, services and resources provided by the supervisor. According to Jones and James (1979:201) general supervisory support involves the provision of social support by a supervisor and is defined as the extent to which a supervisor is aware of and responds to a subordinate's needs. They suggest too that supervisory support also refers to the approachability of a leader, the interest he/she takes in his/her subordinate's problems and his/her ability to enhance a subordinate's sense of personal worth and importance by providing resources when necessary. In addition, Latham and Locke (1979) state that a supervisor should make sure that an employee has sufficient ability and

knowledge to reach his/her goals. Furthermore, an employee should be provided with sufficient resources such as equipment, money, assistance and time, as well as the freedom to utilise them in attaining performance goals. The provision of the correct resources ensures optimal conditions for the achievement of performance standards. House (1981) maintains that support from a supervisor involves the provision of the necessary resources (goods and services) and the information needed by the employee. The provision of this support would ensure that task requirements are understood, and situational constraints identified.

SUMMARY

Supervisory support should be viewed as the understanding, care and sound leadership afforded by a manager and supervisor to his/her staff. It impacts on both behaviour of an individual and performance and encompasses both directive and interactive dimensions. The supervisor who clarifies roles, structures and objectives, gives information and schedules the work of the a subordinate applies directive techniques which are essential for good management and support. On the other hand the supervisor who shows understanding and caring and provides resources and feedback and involves a subordinate in decisions and objective setting applies sound interactive management techniques. Research has shown that good supervisory support (both directive and interactive) enhances effective goal setting and develops self-confidence in an employee. It also reduces stress in the workplace.

2.3 TEAM WORK

The section on team work will include a section on the definition provided by researchers, a description of the dimensions used in describing team work and team work in organisational context.

2.3.1 Definition of team work

It was a breakthrough in organisation theory and practice in late 1920's and early 1930's that highlighted the importance of teams in organisational productivity. Researchers from Harvard University conducted an experiment at the Hawthorne, Illinois plant of the Western Electric Company to see whether work output was connected with work area lighting or illumination (Dyer, 1987:7).

The researchers found that it was something different from lighting that impacted on productivity. In one part of their experimental design, production output constantly increased even though lighting decreased. This led to a series of research activities designed to examine in depth what happens to a group of workers under various other conditions, for example rest periods, varying methods of payment, refreshments and shortened working week. The researchers found that work output seemed to be a function of something more than rest periods, incentives and refreshments, and lighting.

After further analysis, the researchers agreed that the most significant factor was "the building of a sense of group identity, a feeling of social support and cohesion that came with increased worker interaction. Also the team leader behaved somewhat differently toward the workers in the experimental group" (Dyer, 1987:8-9).

Elton Mayo (Dyer, 1987:8), one of the researchers, summed up the leadership by stating that the experimental room was in the charge of "an interested and sympathetic chief observer. He took a personal interest in each girl and her achievement and he showed pride in the group. He helped the group to feel that its duty was to set its own conditions of work and he helped the workers to find the freedom of which they so frequently spoke. At first the each girl was shy, uneasy and suspicious of the company's intentions. Later each girl's attitude was marked by confidence and candour. Before every change of programme the group was consulted. Their comments were listened to and discussed; sometimes their objectives were allowed to negate a suggestion. The group unquestionably developed a sense of participation in the critical determinations

of the unit and became something of a social unit”.

Thus according to Mayo (Dyer, 1987:10) and the other researchers team work is characterised by a sense of cohesiveness, identity, member support and leadership which shows a caring attitude towards each team member. Furthermore each team member is consulted and his/her ideas are listened to. Participation of each in the decisions is also a characteristic of effective team work.

Research conducted by Trist (1981:8-12) into working practices and productivity of coal miners provides a basis for defining team work. He found that at the Haighmoor mine a group of miners involved in short wall mining maintained greater levels of productivity than miners in long wall mechanised operations. The miners at Haighmoor were a very cohesive team who made decisions that affected the work of the team and between them decided how the work would be apportioned out amongst themselves. Co-operation between task groups was clearly evident. As a result personal commitment was obvious, absenteeism low, accidents infrequent and productivity high. These cohesive teams broke down, however where the pits became progressively more mechanised in relation to long wall working “where the miners were more spread out, jobs were organised into one-man-one-task roles and co-ordination and control was externalised in supervision which had become coercive”. There were similar findings, in this research, which equate to those in the Hawthorne experiment and which provide the basis for a definition of team work. The fundamental aspects of effective team work are cohesiveness, involvement in decision making, co-operation and supportive leadership.

Beckard (1972:23-32) maintains that there are four phases in the team building process namely: setting goals and priorities, analysing and allocating work according to members' roles, examining the way the team works in terms of decision making, communication and problem solving and examining relationships among team members.

Gibb, who developed a team performance model (Bradford, Gibb & Benne, 1964 in Reddy & Jamieson, 1988:45-61), maintains that in order to create effective team work the team members need to work in an atmosphere of acceptance, trust and reduced anxiety. This should lead to free flow of ideas and above all a concern amongst the team members for goal setting, problem solving and decision making. The climate in which the team works is critical for establishing a sense of team work according to Gibb's model.

Hanson and Lubin (1986:27-35) suggest that team work implies a particular process of each member working together in which they "facilitate their interdependence toward effective problem solving and task accomplishment". In light of this a well functioning team is defined as: "one that has common goals, established norms, appropriate resources, where members are prepared to listen to one another and can express their views in an open manner. Team work is also characterised by an atmosphere of trust, where conflict is allowed to surface and where joint problem solving takes place. Creativity is encouraged and mistakes are treated as a source of learning. Team work is also characterised by a sense of personal growth".

Palmer (in Reddy & Jamieson, 1988:137-149) provides the following definition of effective team work:

"The ideal team is one whose members know and trust one another's abilities, are aware of one another's shortcomings, and backup one another. The team is well organised to do its task and proceeds at a pace that is energetic but does not cause people to burn out. Progress is measured against concrete milestones, but no one is afraid to 'blow the whistle' if the schedule and deadlines are forcing the team to make improper decisions along the way. The team's leader is considered fair and supportive, and is acknowledged by the members as the one who can make final judgements, negotiate with upper management, and set direction for the team as necessary. Conflicts are aired and resolved in a straightforward manner. The climate is one of energy and enthusiasm; members feel a sense of urgency and dedication to the task,

and they keep one another on track. The members appreciate and enjoy one another for who they are”.

Bell (1986) maintains that effective team work comes from doing a number of things right. He defines effective team work as “a team which is characterised by clear roles, sound leader – member relations, problem solving skills, action taking skills, working with valid information, being self-reflective and working on the important things”. Directive (such as clear roles and valid information) and interactive (leader-member-relations) dimensions are clearly evident in this definition.

Kazemek (1991:15) defines effective teams as having clear goals and objectives, constructive and open conflict handling, team leadership, participative communication, a healthy approach to problem solving and clearly articulated responsibilities and authority. Once again the directive and interactive dimensions are clearly evident.

Belbin (1981:169) defines effective teams as having members with clearly defined roles. He defined eight different roles which characterise effective team work, namely the chairman, the company worker, the task leader, the thinker, the seller of ideas, the team member, the evaluator and the analyser.

Huszco (1990:37-43) maintains that team work is effective when “goals are clearly defined, team skills are present, roles are understood, procedures are in place, interpersonal relations are sound, and team work is reinforced both from within and outside the organisation”.

Dyer (1987:9) suggests that effective team work is characterised by sound leadership. McGregor (1960:232-235) maintains that effective team work is reliant upon an informal comfortable and relaxed environment “where members participate in group discussion; with a “listening” culture where ideas are given a good hearing; an environment where disagreements are not suppressed and conflict is not avoided; decisions are reached by consensus; and where people are free to express their ideas”. McGregor’s (1960)

notion of how an effective team operates is based on the principle of enlightened leadership.

Likert (1961:166-169) defined effective team work in a similar way to McGregor (1960). Such team work is characterised by "high quality leadership; a relaxed working relationship amongst the members; well established team values and goals, problem solving and decision making in a supportive environment; goals which are challenging and agreed to by the team members; sound administration and procedures to guide the team's activities; and the ability for team members to influence each other".

Sometimes definitions may lead into detailed description of what constitutes good team work (as in the case of Palmer, see p 67). Yet it is always necessary in an adequate definition of team work that the directive and interactive dimensions are clearly stated.

For the purposes of this research, effective team work is characterised by member cohesiveness, supportive leadership, clear goals and roles, effective communication within and between teams, employee involvement in decision making and an atmosphere of trust and acceptance.

2.3.2 The dimensions of team work

This section will describe the directive and interactive dimensions of team work, and the choice of dimensions for this research.

2.3.2.1 *The directive and interactive dimensions of team work*

The key dimensions from the definitions in 2.3.1 are:

Table 2.2: The key directive and interactive dimensions of team work

Interactive	Directive
co-operation social support cohesion sympathetic manager member support caring attitude communication atmosphere of acceptance leader fair and supportive constructive conflict handling participation listening culture decision making in a supportive climate atmosphere of trust	goal setting work allocation established norms clear roles valid information responsibilities procedures task

2.3.2.2 *The choice of dimensions for this research*

These dimensions and others have been incorporated into the dimensions in this research. These relate to the relationships of a team member with other team members (team work within teams), sharing of information, the extent to which departments in the organisation co-operate to achieve company objectives and the feedback and recognition a team member receives from his/her leaders.

- **Team work within teams**

The relationship that each team member develops with other team members is manifested in clarity and understanding of roles, the manner in which conflict is confronted and handled, the support that each team member gives to others, an understanding by each team member of the goals that the team is required to achieve and the support and direction given by the team leader (Bell, 1986).

According to Dyer (1987:84) role clarification is important in team building. The purpose is to ensure that each member understands what he/she should be doing and also to ensure that each member understands what other team members are doing. According to Buller (1986:159) team work necessitates that everyone understands his/her role. Many team building processes contain role clarification interventions. Role clarification usually consists of an understanding of key result areas, and key output tasks, of one's own job and those of others (Humble, 1970:116).

Team work amongst team members is enhanced when conflict is maturely handled. According to Dyer (1987:84) disagreements are not suppressed because the group wants to resolve them. Hanson and Lubin (1986:27-35) say in this regard that "the team is willing to surface conflict and focus on it until it is either resolved or managed". In this way issues are surfaced, discussed and solved, adding to the effectiveness of the individuals involved. McGregor (1960:233) suggests that conflict is well handled in a group "when criticism is frank and relatively comfortable and constructive; conflict handling is constructive; disagreements are openly discussed and team relationships are enhanced". Effective team work is characterised, in part, by mature resolving of conflicts and disagreements. This will be achieved when each individual in the team is involved.

The support that each team member gives the other increases his/her sense of being in a team. According to McGregor (1960:234) this support is characterised by team members listening to each other and in giving ideas raised by team members a hearing. In this regard Likert (1961:167) maintains that support is a function of the amount of loyalty, trust and confidence shown by each team member in each other. Both Likert and McGregor suggest that the characteristics of a supportive atmosphere are where each team member interacts to solve problems and make decisions.

Team work within teams is a manifestation of goal setting in the organisation. Likert (1961:168) maintains that highly effective teams have well established goals, and that each team member has helped establish them. Likert (1961) also maintains that

effective team work is characterised by “goals that are challenging but not too difficult to achieve”. Kazemek (1991:15) suggests that a member of an effective team has clearly defined goals and objectives and that this enhances performance. Huszco (1990:37-43) maintains that effective goal setting is related to the direction, purpose, and mission of the organisation, and that these goals determine the amount of commitment that each team member has towards others in the team, and towards the organisation. According to Buller and Bell (1986:307) team work which is based on specific goals, has significant effects on task performance.

The support given by the team leader is effective in a number of ways. Dyer (1987:9) maintains that an effective leader instils confidence in his/her team members. He/she does this by showing a personal interest in each member's achievements. A supportive leader also believes that each member is able to achieve the impossible “but, when necessary, will temper the expectation level so that the member is not broken by a feeling of rejection” (Likert 1961:166-169).

Palmer, (in Reddy & Jamieson, 1988:137-149) suggests that a supportive leader ensures that team members really know each other, that he/she learns to rely on the others and that problems that the team are experiencing are addressed and resolved. Furthermore a supportive leader knows how to relate to each team member individually. According to Dyer (1987:9) a supportive leader never pressurises a group into change and that changes are made only after consultation.

A supportive leader also plays a very important role in encouraging each team member to participate in the problem solving and decision making processes that affect the team. This helps to stimulate the creativity of an individual team member (Likert, 1961:166-169). Furthermore, Likert (1961) states that the mere fact that a group member is able to influence others contributes to the flexibility and adaptability of the group and enhances team building. Kazemek (1991:15) supports this notion by stating that effective teams have healthy approaches to problem solving and decision making, largely because such teams inspired by a supportive team leader, practice open

participatory communication amongst each of its members. Blanchard, Carlos and Randolph (1996:96) maintain that a leader empowers his/her employees by involving each one in the decision making processes. They suggest that an employee at the lowest level in the organisation can be empowered in this manner. The mere fact that he/she is permitted by the leader to contribute to the decision making processes gives him/her a sense of belonging to the team.

- **Sharing of information**

Sharing of information is an important aspect of team work and according to McGregor (1960:232-235) it is characterised by "much discussion where everybody participates. Furthermore, the task or objective is well understood and accepted by each team member and there is free discussion of the objectives until the members of the group can commit themselves to it". McGregor (1960) states further that sharing of information takes place when each person is free to express feelings and ideas.

Likert (1961:166-169) suggests that sharing of information occurs when there is a strong motivation amongst each team member to communicate fully and frankly to the group all information which is relevant and of value to the group's activities. He goes on further to state that just as there is a high motivation to communicate, there is also a strong motivation to receive communication. Each member is genuinely interested in any information on any relevant matter that any member of the group can provide.

Hanson and Lubin (1986:27-35), in this regard, maintain that sharing of information occurs when each team member continually tries to listen to and to clarify what is being said, and to show interest in what others feel and say.

Boss (1991:40) suggests that effective team work occurs when a team member is encouraged to "share ideas and perceptions as a step to work through relational problems". The extent to which this is realised is dependent on a trust relationship that has been fostered between team members.

Another critical aspect of sharing information relates to open and honest communication between each member of the team. Hoevermeyer (1993:70) says teams are effective when “everyone on a team is able to communicate openly and honestly with each other without being afraid of telling the truth. People and teams simply cannot be effective if they can’t get the information to do their jobs well”. It is important to open the lines of communication to assure the success of an individual and teams. Sharing of information in this regard is ensuring effective open lines of communication within the organisation.

- **Co-operation between teams**

It is important that teams work well together in the attainment of organisational goals. Likert (1961:166-169) maintains that effective teams attach a high value to new, creative approaches to its problems and to the problems of the organisation of which it is part. Teamwork between teams becomes important.

Boss (1991:39) suggests that effective teamwork between teams is characterised by an open, problem-solving climate throughout the organisation where problems are confronted and differences are clarified both within groups and between groups. It also emphasises a trust relationship between groups in the organisation.

According to Huszco (1990:38) an effective team has constructive external relationships with its broader environment. It understands its role in the organisation and works to improve relations with other units of that organisation. “It has good diplomatic relationships with all kinds of individuals and groups”.

Dannemiller (1980, in Reddy & Jamieson, 1988:107) describes interventions that she and her team used to build team work between different departments in various levels of the organisation. “We designed a team building intervention to occur across at least four levels of the organisation”. Using this method she and her team were able to build different kinds of teams; natural work teams, cross functional/cross level teams and ultimately an organisation-wide team “which would develop a new vision of what the

organisation could be and what it needed to do to get there". This is clear evidence that team work between teams is an important on-going feature of organisations striving to improve productivity throughout the entire structure. According to Hogg (1990) multi-cultural or cross functional teams are on the increase.

- **Feedback and recognition**

There is sufficient evidence (Dyer, 1987:9) to suggest that the leader should acknowledge the work performed by each subordinate and give feedback and recognition for work well done. According to Dyer (1987) "the leader should have a personal interest in each person's achievements and he should show pride in the group's activities".

Likert (1961:167) suggests that feedback and recognition also comes from each group member to other members of the group and this leads to flexibility and adaptability of the team itself.

Buller and Bell (1986:322) indicated that in goal setting research they conducted with miners, regular feedback on productivity and the grades of ore they were obtaining played a very significant role in their team building programme. They concluded that each miner who set goals and received periodic feedback about his/her performance developed and applied better strategies for improving the grade of ore he/she produced than a miner who didn't receive feedback on performance.

Brauchle and Wright (1992:34) suggest that whenever a worker displays behaviours that are characteristic within self-directed work teams, management should give him/her positive feedback and recognition for displaying such behaviour. They mention that where a team for example develops a new work-order system, and management endorses the change as a positive step, it provides a clear recognition for the team's performance leading to positive behaviour amongst each team member.

Hoevermeyer (1993:69) maintains that each employee and team member wants to be measured against clear specific goals and he/she needs feedback from his/her manager on how he/she is performing. A person only feels motivated when he/she has clear, specific, measurable, realistic and achievable goals, and when he/she gets periodic feedback on how he/she is doing in reaching these goals. Feedback is needed so that each person on the team can take corrective action. Huszco (1990:37-47) points out that for teams to be effective they need to obtain feedback and recognition from the organisation for work well done. This serves to reinforce successful behaviour.

The dimensions of team work which form part of the team building profile are a manifestation of the directive and interactive dimensions referred to in 2.3.1. They are, however included in the interactive dimensions of the team building profile in this research.

2.3.3 Team work in organisational context

This section will indicate how team work impacts on the behaviour and performance of an individual.

2.3.3.1 Behaviour

The impact of team work on the behaviour of an individual is reflected in this section.

Both Likert (1961) and McGregor (1960) suggest that when teams operate effectively they achieve organisational goals because each member interacts freely with others, and team members solve problems and make decisions in a supportive atmosphere. Furthermore, each member of the team and the leader usually develop a high degree of trust and confidence in one another (Likert, 1961:166-169). Also, when teams are working effectively, the atmosphere tends to be informal with much discussion in which virtually everyone participates. The objectives of the group are well understood, each member listens to the others, and action is taken (McGregor, 1960:232-235).

Moosbrucker (1987, in Reddy & Jamieson, 1988:88) maintains that a leader of an effective team is responsible for creating the vision of the organisation which she says "is greatly needed in a complex and changing environment". She states further that the leadership vision which is characteristic of many Japanese organisations enhances group motivation through support and co-operation of each employee. In Japanese companies each group normally has a leader but tasks are assigned to the group as a whole, not just to the leader, with each group member responsible for deciding how to carry out the task to achieve the goals. The team leader's primary function is to facilitate the group's performance. The approach is to create an appropriate supportive atmosphere and a sense of identity and solidarity amongst team members. Maccoby (1988:42-43), in research he conducted at the Toyota Motor Company in Japan, supports the view that Moosbrucker (1987) holds regarding team leadership in Japanese organisations. He maintains that the Japanese have an art of creating teamwork not only by rewarding each worker for ideas and good performance, but by designing the leadership function to include sociability (e.g. at Toyota, a foreman has a budget for taking workers out for drinks once a fortnight and this, he says, pays off in terms of motivating an employee). According to Maccoby (1988) the team is conceived as a family-like group with easy familiarity and a sharing of information. Each team member may meet with the others in quality circles to solve production problems and then return to his/her tasks.

In the light of the above Moosbrucker (1987) suggests that the most effective style of leadership is "a style that is supportive and low key, requiring a soft voice, a high boiling point, and a talent for creating consensus and a tolerance for ambiguity". The lesson to be learned, according to Moosbrucker (1987), is that a leader who facilitates group involvement (particularly in the decision making processes) is more likely to develop cohesive teams than one who seeks to single out an individual for reward and recognition (as is the case in most American organisations).

Boss (1991:38) states that the underlying principle of effective team work is to empower a person, to maximise control over his/her environment, so as to expand his/her

choices, to increase alternatives, and help him/her gain skills in creating win-win situations in which the individual can grow and become successful. According to him affective team work also builds trust amongst individuals and develops an open problem-solving environment where conflict is well handled and each individual is involved in decisions.

With the current phase of downsizing, unbundling, process re-engineering and restructuring (de-layering hierarchies) that is taking place in South African organisations and mines, there is a trend to give the development of team work high priority. Some organisations are starting to focus on so called self-directed work teams in order to empower employees. McNamara (1994:35-42) gives reasons why self-directed work teams are being encouraged in South African operations. He states:

“the recent wave of downsizing and retrenchments in most industries implies a necessary devolution of decision making to lower levels of the organisation; the challenge of international competition, locally and abroad, calls for greater employee initiative, motivation and involvement if production and quality goals are to be achieved; and the growing pressure from employees themselves for greater participation and involvement in the work place”.

An article which appeared in *The Business Day* (Grawitzky, 1996) indicates that one of the reasons for Impala Platinum mines improving the productivity of the workforce has been ascribed to the introduction of self-directed work teams. Generally, the self-directed work team provides for the greater empowerment of each employee at lower levels of the organisation (McNamara, 1994).

Since self-directed team work leads to the greater empowerment of an employee an understanding of empowerment in context of team work is necessary. Empowerment is the freedom to take independent action in solving work problems or achieving work goals (Veldsman, 1993). For an individual it means enjoying greater discretion in budget authorisations, or in dealing with customers. In the hotel industry, it may take the form

of granting greater discretion to individual hotel managers to give discounts to regular customers (Manyumwa, 1993). It also means an individual team member taking initiative without having to repeatedly call upon the supervisor for assistance. In research conducted by Wellins, Byham and Wilson, (1991:26-27) it has been found that when a group takes on more job responsibilities, and forms a team to share duties and achievements, new heights of employee empowerment are possible.

2.3.3.2 *Performance*

The impact of team work on performance is reflected in this section.

Likert (1961) and McGregor (1960), maintain that teams work well in an optimum organisational climate where the pursuance of company goals are clear and achievable. Dyer (1987:20) suggests that the development of the team therefore, goes further than merely training the individual team leader or manager. It involves training the whole team in team dynamics to achieve company objectives. He found that everyone who works together effectively, applies more effective ways of problem solving, planning, decision making, co-ordination, integrating resources, sharing information, and dealing with problem situations in the achievement of goals.

Boss (1991:39-43) found that team building and team work have a significant role to play in the performance of teams in the health care industry, particularly with regard to the handling of conflict that often arises between nurses and medical practitioners in hospitals. Boss (1991:39-43) maintains that effective team work is essential to the successful practice of medicine, and health care organisations can greatly benefit from team-building interventions. He claims that achieving the goals of team building provides a foundation for organisational effectiveness and productivity. The general goals of effective team work activities are to improve the work group's efficiency, effectiveness and health in order to help the organisation accomplish its mission. Effective team work, according to Boss (1991) also increases the sense of ownership of organisational goals and objectives throughout the membership of the organisation.

It helps to create more collaboration between interdependent persons and interdependent groups within the organisation.

Research indicates that there is a certain amount of controversy as to whether effective team building interventions improve performance. The problem is that, where improvements in performance have occurred, it has been difficult to determine whether or not those improvements were due to improved teamwork interventions. However, there has been some documented evidence that team work improves performance. Buller's (1986:158) review of the literature reported that of nine studies that implemented clearly defined team building interventions, six reported positive effects on performance. Other research that indicates the positive impact of team work on performance is documented by Demeuse and Liebowitz (1981:357-378) where positive results were found in 19 of the 36 studies reviewed by them. Yet even these researchers warn against making any definitive conclusions about the actual effects of team work on performance because the research design in such studies is often difficult to rigorously control (Buller & Bell, 1986:306). One aspect of team work, however, that has been the subject of extensive experimental research in both the laboratories and field settings, is goal-setting. It has been found to be a robust technique for improving task performance. If team work strategies are focused on goal setting then it is very likely that task performance will increase (Buller & Bell, 1986:308).

SUMMARY

The ingredients of sound and effective team work are founded on good team leadership. The leader of the team establishes good relationships and cohesion amongst each team member. He/she does this by ensuring that the directive/structural aspects of team work are in place – clear roles, structures and standards. However he/she also ensures that the interactives are in place too. By this is meant that team members listens to each other, show support towards other team members and that each team member is involved in decisions, and shares information. Disagreements are handled in a mature manner and team membership is characterised by trust, openness

and honesty. Eventually, in self-directed teams, each team member takes decisions that affect and improve the performance of the team.

2.4 THE TEAM BUILDING PROFILE

In this section the properties of the team building profile and the personality profile of the optimal functioning team member will be given.

2.4.1 The properties of the team building profile

In this research there are the two key dimensions of team building (directive and interactive) that affect the behaviour and the performance of an individual. These underpin the dynamics of the performance model in this research. They also contribute to an understanding of the personality characteristics of an optimal functioning team member.

The team building profile, in this research, comprises the directive and interactive dimensions of climate, supervisory support and team work. These dimensions influence the psychological atmosphere, the perceptions, behaviour and performance of each individual in teams.

2.4.1.1 The directive dimensions

The directives which influence an employee's perceptions of the psychological atmosphere of the organisation and impact on his/her behaviour and performance have been defined in this research, as clarity of roles (Lyons, 1971), job standards (Gelfand, 1972) which should be realistic to achieve and sufficiently challenging; defined areas of responsibility in the job, the clarity of the organisational structure (Gelfand, 1972), and the procedures in the organisation (Kline & Boyd, 1991). The directive dimensions of team building are important for establishing the guidelines and rules by which an individual functions in an organisation. Without this structure and certainty there would

be disorder and chaos and an employee would be working in a directionless setting. A lack of established directives can result in an individual in an organisation suffering stress and anxiety. The directives provide the stability that each individual needs. Rules governing retirement funds, salary scales, annual leave, conditions of employment and reporting relationships are examples of the directives that are provided by the organisation and needed by the individual to ensure his/her psychological security.

2.4.1.2 *The interactive dimensions*

There are measurable interactive dimensions which affect an individual's perceptions of the psychological atmosphere of the organisation, and impact on his/her behaviour and performance. These interactive dimensions have been described in various ways by researchers. Blake and Mouton (1969) refer to styles of leadership which affect the behaviour of an individual. A very important interactive dimension, which drives the team building process, is the extent to which an employee can share in, or be involved in, the decision making process. This sharing in the decision making process has the affect of creating ownership and a sense of personal control over one's work environment which enhances personal motivation and performance. This is supported by the research of Fiorrelli and Margolis (1993:33) who also stress the critical importance of involving each and every employee in decision making. The interactive aspects of team building also focus on the importance of support given by the supervisor or manager in the process. A supportive supervisor ensures that his/her subordinate has sufficient information and resources to do his/her work; and also provides each individual with the required feedback and emotional support. This enhances the psychological atmosphere of the organisation so that an employee is able to work in a climate which is perceived to be relaxed, and which encourages creativity and participation. A supportive climate also encourages communication both upward and downward, and in lateral directions. The interactive dimension of the team building profile also includes a mature way of handling conflict situations (Boss, 1991). Problems are aired and constructively resolved and team members will openly support, and even chastise other team members in an open manner. The interactive aspect of the team

building profile manifests itself in participatory goal-setting which enables each team member to contribute meaningfully to the profit and cost objectives of the organisation (Moosbrucker, 1987). The effective leadership style and support which the employee enjoys from his/her manager enables him/her to contribute to these goals. The greater the support, and more participatory the style of the supervisor, the greater will be the involvement of each individual in the goal setting process (Pretorius, 1993).

2.4.2 The personality profile of the optimal functioning team member

According to Cilliers (1988:16) the characteristics of the psychological optimal functioning person are numerous. However, they can be meaningfully separated into the intra- and interpersonal characteristics. Furthermore he maintains that the two types are interdependent with the interpersonal evolving from the intrapersonal. It is part of a purposeful growth process in which all aspects of one's self develops on an intra- and interpersonal level.

Cilliers (1988:16) distinguishes between the two characteristics and indicates that the intrapersonal characteristics point to the cognitive, affective and conative characteristics of the person, whilst the interpersonal characteristics relate to relationships with other people.

The above classification will be used to describe the personality profile of the optimal functioning team member with regard to the theoretical basis of the directive and interactive dimensions of team building.

The dimensions of climate referred to in section 2.1.2, the dimensions of supervisory support in section 2.2.2 and the dimensions of team work in section 2.3.2 form the basis of the directive and interactive dimensions of the team building profile in which the personality profile of the optimum functioning team member develops. The personality profile will be discussed below.

Intrapersonal characteristics

Research into optimal team building suggests that the interplay between the directive and interactive dimensions will lead to an optimisation of the individual (Hanson & Lubin, 1986:27-35; Huszco, 1990:37-43; Likert, 1961:166-169).

- **Cognitive characteristics**

According to the definition of Huszco (1990) effective team building occurs when roles are understood and work procedures are in place and comprehended. Hanson and Lubin (1986) suggest that goals are understood and norms are established. This involves a cognitive judgement by the individual as team member and the optimal team member has a good understanding of his/her place in the organisation. The individual understands the vision of the organisation.

- **Affective characteristics**

The individual has a feeling of identity and belonging with the organisation and trust in the organisation. The individual has a positive attitude to work and this inspires confidence in him/her.

- **Conative characteristics**

Hanson and Lubin (1986) indicate that optimal team building leads to task accomplishment. Buller and Bell (1986) and Demeuse and Liebowitz (1981) also link effective team building with performance. The optimal team member has a desire to achieve performance results especially where he/she is involved with the setting of objectives. The individual derives energy from this, and strives for excellence.

Interpersonal characteristics

The definition of Hanson and Lubin (1986) and others in this research (Kazemek, 1991:15) who identified interactive dimensions of team building, point clearly to the individual's relationship with the organisation. Important characteristics are constructive conflict handling, participative communication, established team values, involvement in decisions, and supervisory support.

Trist (1981:12) suggests that team building involves co-operation between individual members of a team. Dyer (1987:84) maintains that role clarification is important and the individual understands what other team members are doing. The optimal functioning team member forms good relationships with other team members and he/she trusts them and feels committed with them in the achievement of goals. Good communication with other team members characterises the team member's interpersonal relationships and he/she has a positive attitude to other members of the team.

COMMENT

The optimal functioning team member has a clear understanding, cognitively, of what is expected of him/her in terms of the rules and norms governing the organisation. The affective characteristics are reflected by the sense of belonging and identity that the person feels within the organisation. The conative characteristics are reflected in the individual by his/her desire to achieve objectives set in the organisation. The interpersonal characteristics are reflected by the desire on the part of the individual to co-operate and communicate with others and function as a team member. The personality profile of the optimal functioning team member has been established.

Herewith the first aim of the literature review has been achieved, namely the creation of an optimal team building profile and the personality profile of the optimal functioning team member.

2.5 CHAPTER SUMMARY

The aim of this chapter has been to research the dimensions that contribute to an understanding of team building. The dimensions that are considered important in this research are the directive and interactive properties of organisational climate, supervisory support and team work.

Climate is described by researchers as the measurement of the psychological atmosphere of the organisation. It comprises measurable properties such as organisation structure, roles, standards, decisions, conflict handling, communication, leadership and team work, and it is the perception that each employee has of these properties that determine the measurement of the psychological atmosphere. It has also been established, through research, that perceptions of climate affect the behaviour of an individual, and this, in turn, has an impact on his/her performance in the organisation.

It has been shown that the amount of support an employee receives from his/her supervisors and managers has a significant impact on performance. Since supervisory support is linked with effective goal setting in organisations, it has been shown that a supportive supervisor enhances the performance of each employee. Supervisory support is described as the constructive helpful attitude that a supervisor has towards his/her staff and in terms of this research, it is viewed as the amount of instrumental, emotional, informational and appraisal support that a supervisor gives to his/her employees.

Team work is a manifestation of the relationship that exists between the leader of the team and each team member, between team members themselves, and between teams within the organisation. Determinants of effective team work are the support provided by the leader, clarity of roles and structures, the amount of participation which a team member enjoys and the supportive relaxed atmosphere which exists amongst team members. Involvement in decisions and understanding and involvement in goal

setting and the mature manner in handling conflict are also determinants of effective team work. The critical variables are team work within teams; sharing of information; co-operation between teams; and feedback and recognition given to team members.

The integration of the above concepts leads to the development of the team building profile which comprises two essential and inter-related dimensions. On the one hand, there are the directive or structural dimensions which create the organisational structural parameters, within which a person performs his/her work; and on the other hand, there are the interactive dimensions which create the behavioural and supportive fabric of the organisation. Both the directives and interactives interact with one other to form the team building profile. Furthermore the personality profile of the optimal functioning team member was established as part of the team building profile.

CHAPTER 3

THE SALUTOGENIC PROFILE

The aim of this chapter is to create a salutogenic profile (sense of coherence, locus of control and self-efficacy) and the personality profile of the optimal functioning individual. This refers to the second step of phase one of the research methodology (refer 1.7).

To meet this aim the following method will be used. Firstly an analysis will be made of the salutogenic paradigm. Thereafter, an analysis will be made of each of the salutogenic concepts used in this research by describing the theoretical frame work of each, the characteristics relating to the development of each orientation, and each concept in the organisational context. Finally a salutogenic profile and the personality profile of an optimal functioning individual will be developed.

3.1 THE SALUTOGENIC PARADIGM

An analysis of the literature regarding the framework of the salutogenic paradigm follows.

3.1.1 Background and development

The term paradigm which was introduced into the philosophy of science in 1962 by Kuhn (1970) describes a fundamental set of beliefs some of which are inaccessible to empirical validation (Kuhn, 1970). Strümpfer (1990:265) maintains that the word "paradigm" is well entrenched in the language of the social sciences. Boring (1963:13) used a German term *Zeitgeist* "for the source of events that occur neither by agreement nor by fact but are self-determined under the multiplicity of climates of opinion". Thus Boring (1963) uses the term *Zeitgeist* to describe a climate of opinion that characterises the culture of a period.

According to Strümpfer (1990:265) psychology has been operating mainly in a paradigm of pathogenic thinking. In support of this Cilliers, Pheiffer and Visser (1995:1) stated that “clinical psychology has been focusing on the study and treatment of abnormal behaviour from the pathogenic paradigm for many years and compared to theories and models of abnormality, there is little literature available describing the nature and characteristics of normality and health”. According to Strümpfer (1990:265) the salutogenic paradigm is an effort to fill this gap in not describing health as merely the absence of illness, but by trying to understand the origins of health or wellness (Cilliers et al, 1995:1).

This paradigm which forms a central part of the performance model in this research was first described by Antonovsky (1979) and defined by him (Antonovsky, 1987:19). It has subsequently been confirmed by Breed (1997:59-60). It's emphasis is on the origins of health and wellness (Latin *salus* = health and Greek *genesis* = origins). It is in contrast to the traditional way of thinking in psychology where the medical model stresses the pathogenic orientation – movement from sickness to wellness. The salutogenic paradigm emphasises the maintenance and enhancement of health and wellness irrespective of the “omnipresence of stressors” (Antonovsky, 1979:10).

According to Antonovsky (1987:15-18) the central concept of salutogenesis is what he terms a person's **sense of coherence** (an inner strength) which that person develops over time. This is developed by establishing an understanding of how stimuli in one's environment are perceived as logical and fit into a coherent format (comprehensibility), whether the resources are available in the environment to meet the demands posed by these stimuli (manageability) and whether these demands are perceived as challenges and worthy of investing one's energy in (meaningfulness).

The critical salutogenic question therefore, in relation to the study of people, is how do they manage to stay healthy? How is it that some people are able to develop a sense of coherence about the world of which they form part? The paradigm focuses on normal behaviour and the locating and developing of personal and social resources and

adaptive tendencies which result in coping and growth (Cilliers et al, 1995).

Antonovsky (1987:3) sees the paradigm as answering the question "How do we manage tension and prevent it from leading to stress?" He sees it as marshalling the resources at one's disposal to enable one to resolve tension at least some of the time. This led Antonovsky (1987) to look for elements in the environment which enhance the coping mechanisms. He noted in research of concentration camp survivors, poor people and members of minorities that there are those who stay at a fairly high level of health. This led him to the full awareness of so called generalised resistance resources (GRR's) which he defined as any characteristic of the person the group, or the environment that can facilitate effective tension management. Antonovsky (1972:541) writes: "Because the demands which are made on people are so variegated and, in good part, so unpredictable, it seems imperative to focus on developing a fuller understanding of those generalised resistance resources that can be applied to meet all demands".

The salutogenic paradigm comprises a number of concepts that have developed independently. Contributions to this paradigm describing growth beyond normality are partly due to the work of neo-behaviourists such as Rotter's (1966) locus of control, Bandura's (1982) self-efficacy, Rosenbaum's (1988) learned resourcefulness and from a humanist-existential approach Antonovsky's (1979) sense of coherence, Kobasa's (1982) personality hardiness and Ben-Sira's (1985) potency. From these contributions of the salutogenic paradigm as well as other personality theories (Cilliers & Wissing, 1993:5-10) an umbrella concept of psychological optimality has developed. Although this concept is not defined formally in the literature there has been a tendency in the so-called growth psychology literature to move the emphasis away from negative, abnormal, pathogenic behaviour to the positive human motivation to grow and to actualise potential (Pheiffer, 1994:13-14). In essence the concept of psychological optimality underpins the salutogenic paradigm.

Psychological optimality as an umbrella concept (Cilliers, 1988:15-18) corresponds with many personality theories, models and technologies which emphasise the growth of personality and potential actualisation. This psychological optimality consists of specific personality characteristics and concepts such as intrapersonal ego strengths as well as effectiveness on the interpersonal level.

3.1.2 View of man

A number of theorists referred to as the third force psychologists (Helle & Ziegler, 1987) have together with the salutogenesisists in the previous section contributed to the concept of psychological optimality. They believe that the human being is basically good and worthy of respect and that he/she will move toward the realisation of potentialities if environmental conditions are conducive. In their view, the individual is seen as health-seeking and as capable of fulfilling his/her own aspirations. The individual has motivational drive towards self-actualisation which is defined as the optimisation of quality of life and psychological growth, achieved through self-awareness and acceptance of own choices and responsibility. The person has complete freedom of choice and can live an authentic (honest and genuine) life. A person is not static, he/she is always in the process of becoming more and living fully in the here and now. Key psychologists of the third force discipline contributing to the notion of psychological optimality are Fromm, Allport, Frankl, Maslow and Rogers (Meyer, Moore & Viljoen, 1990):

Erich Fromm (1956) stresses that the psychological well-being of man emanates from a productive relationship with society, embracing qualities such as love, creativity and social interest. Fromm (1956) describes the productive orientated personality as the person who loves fully, is creative, has highly developed powers of reason, perceives the world and self objectively and possesses a firm sense of identity. He maintains that the impact of society influences the psychological health of the individual.

Gordon Allport (1961) was one of the first personality theorists to study mature, normal

adults instead of neurotics. According to Allport (1961) psychological optimality or "health" is achieved in "maturity" which he/she describes as a process of growth toward functional autonomy of human behaviour, of self and ego development. As the person matures he/she develops interests outside of the self, becoming fully involved in work and relationships with family and friends. The mature person acts rationally and regards the world objectively.

Victor Frankl (1967, 1969), who is also deemed to be a third force psychologist, maintains that a person who is self-transcending lives by ideals and values. Transcendence is the process in which a person moves beyond focus on self to a relationship with someone outside him-/herself. In this way the self is fulfilled, actualised and finds meaning and purpose. Meaning and purpose in life depend on spirituality, freedom and responsibility. Spirituality entails saying "yes" to life, despite whatever one has to face, be it suffering or even dying. Freedom to choose one's own way is expressed by Frankl (1969) as "he who has a why to live can bear with almost any how". According to Frankl (1969), the self-transcending person is directed toward future goals, committed to meaning through his or her work and love of and by others, is responsible, freely choosing and independent.

Abraham Maslow (1971), the father of humanistic psychology, based his theory of self-actualisation on the healthy, creative individual aiming for the highest aspirations. He maintains that an individual striving for growth (self-actualisation) achieves supreme development and use of all abilities, qualities and capabilities. Maslow (1971) refers to self-actualisation as growth motivation and its attainment means increased mental health. In terms of the optimal work setting the self-actualising personality displays the following characteristics compared to the average person: he/she has a greater acceptance of self and others; he/she has superior perception of reality; shows more spontaneous behaviour; is problem orientated rather than self-centred; is more autonomous and independent; shows richer emotional reactions – attaches more value to people than things; is able to show empathy and understanding and has deeper and more enduring interpersonal relationships.

Carl Rogers (1973) believes that a fully functioning individual is one who has an all-governing drive for self-actualisation. Such an individual is one who uses, recognises and develops all his/her abilities and talents to further self-knowledge, is aware of and enjoys the richness of experiences, has decision making powers and has freedom of selectivity and creativity in the environment.

The third force psychologists, therefore, view the psychologically optimal person as an individual who is in the process of "becoming" through finding meaning in life, through transcendence and striving toward self-actualisation by being productive, fully functioning, responsible and mature (Schultz, 1977).

3.1.3 The concepts in this research

Psychological optimality based on the third force psychologists and salutogenic thinking forms the foundation of the salutogenic paradigm in this research. Based on the conceptual framework of the salutogenic paradigm, this chapter will now examine the contributions of Antonovsky, Rotter and Bandura to salutogenic thinking. Antonovsky (Cooper & Payne, 1991:68-103) makes a strong case for using his own sense of coherence, Bandura's self-efficacy and Rotter's locus of control as what he terms important constructs in the salutogenic orientation. Antonovsky (Cooper & Payne, 1991), referring to the salutogenic orientation as being that which ensures one is able to cope with life's stressors, writes as follows regarding the importance of these: "Instead of asking about pathogens and failures in coping which led to disease, what was common to these approaches was their focus on explanations of successful resolution of stressors and maintenance of return to health. The focus on successful coping is the first and major criterion for selection of the constructs or salutogenic strengths". The researcher has regarded it important to include the sense of coherence, locus of control and self-efficacy, as the main salutogenic concepts in this research.

3.2 SENSE OF COHERENCE

The section on Antonovsky's contribution to salutogenesis will include the theoretical framework of the concept of sense of coherence, characteristics relating to its development, and the sense of coherence in organisational context.

3.2.1 The theoretical framework of a sense of coherence

The sense of coherence which forms the basis of Antonovsky's (1979) salutogenic model focuses on those factors which move an individual toward the healthy end of the sickness-health continuum, or as Antonovsky (1987:15) states "the sense of coherence is a major determinant for maintaining one's position on the healthy end of the health ease/disease continuum". Thus the sense of coherence focuses on those factors which promote coping and well-being, rather than focusing on risk factors contributing to disease. A formal definition of sense of coherence according to Antonovsky (1984:5-6; 1987:19) is: "the sense of coherence is a global orientation that expresses the extent to which one has a pervasive, enduring, though dynamic feeling of coherence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable (2) the resources are available to one to meet the demands posed by these stimuli and (3) these demands are challenges worthy of investment and engagement".

Furthermore, according to Antonovsky (1979:123), the sense of coherence predicts the extent to which one feels that there is a probability that things will work out well. Each portion of the definition describes three core personality characteristics which he describes as comprehensibility (the individual can make sense of the stimuli in the environment), manageability (the individual can cope with the stimuli with the available resources) and meaningfulness (he/she can identify emotionally with events in the environment).

According to Antonovsky (1979:125) sense of coherence is by no means a static entity. He states that he is certainly not convinced that the sense of coherence is determined solely by genes or early childhood experiences. It is shaped and tested, reinforced and modified not only in childhood but throughout one's life.

Antonovsky (1979) notes that the strength of the sense of coherence is connected to a variety of coping mechanisms which he refers to as generalised resistance resources (see 3.2.2.3) and he defines these "as any characteristic of the person, the group, or the environment that can facilitate effective tension management". Of particular significance to this research is the role of interpersonal relationships which Antonovsky (1979) refers to as interpersonal-relational generalised resistance resources, especially for determining an environment conducive to developing a strong sense of coherence.

In his explanation of the generalised resistance resources concept, Antonovsky (1979:100) grouped them into three broad areas namely "adaptability on the physiological, behavioural, psychological, cultural and social levels; profound ties to concrete immediate others; and commitment of our institutionalised ties between the individual and the total community". The extent to which one's life provides one with generalised resistance resources derived from these, the greater will be the person's "generalised pervasive orientation that is referred to as a strong sense of coherence" (Antonovsky, 1979:122).

In psychological terms, therefore, the sense of coherence could be conceived as a personality characteristic or coping style – an enduring tendency to see one's life space as more or less ordered, predictable and manageable. Sense of coherence has implications for one's response to stress situations (Antonovsky & Sagy, 1986:213) and the extent to which a person makes use of the generalised resources available will determine the level of his/her sense of coherence.

Strümpfer (1995:81-89) argues that Antonovsky's concept of salutogenesis referring to the origins of health should be broadened even further to what he refers to as

“fortigenesis”, which relates to the origins of psychological strength in general. Strümpfer (1995:81) suggests that the sources of salutogenesis/fortigenesis are to be found in worklife experiences and one’s family upbringing. Strümpfer (1995:84) maintains that psychologists’ usual assumption that radical differences in psychological functioning originate during child development only, does not represent the whole truth. For instance the effects of continuous exposure of an adult to a conducive job could form the basis of dramatic change on his/her personality development. Strümpfer says (1995: 83), “one of the routes of fortigenesis is through conducive work experiences over a relatively long period of time”. He clearly links the relationship between the work environment and the development of personality variables. This view forms an essential basis of this research.

3.2.2 Characteristics relating to the development of a sense of coherence

This section will analyse the stages in the development of the sense of coherence, the components in the development of the sense of coherence and the sources of the sense of coherence.

3.2.2.1 The stages in the development of a sense of coherence

The strength of one’s sense of coherence and one’s position on the health ease/disease continuum (Antonovsky, 1979:123) is established through the different stages of one’s development and experiences in life. In this regard, Antonovsky (Cooper & Payne, 1991:91) suggests that the psychologist, taking a depth view of one’s life history or social interaction, asks: “to what extent are the patterned life experiences of the individual characterised by consistency, load balance and participation in socially valued decision making?” The sociologist according to Antonovsky (Cooper & Payne 1991:95) would look more at the structural level: “to what extent do the institutionalised roles, from childhood through old age, shaped by the nature of the society in which they are rooted, facilitate such experiences”. Both approaches, from two different schools of thought (a psychologist and a sociologist), can enrich one another and contribute to

an understanding of how the sense of coherence develops.

Antonovsky (1987) continually debated the issue of which stage in life one develops one's sense of coherence, at which stage it stabilises and whether or not the sense of coherence can increase or decrease during the course of one's life.

Antonovsky (1979:125) states: "I am certainly not committed to understanding the sense of coherence as being determined forever and anon by genes or early childhood experience. It is shaped and tested, reinforced and modified not only in childhood but throughout one's life". In this regard, for example, Antonovsky (1979:125) indicates the case of a neurotic person with low sense of coherence who can be taught to engage in goal-orientated behaviour through a salutogenic orientation, thereby strengthening the sense of coherence. Similarly, he indicates that a radical change in one's structural situation – in marital status, occupation, place of residence – can lead to a significant modification in one's sense of coherence. Antonovsky (Cooper & Payne, 1991:100) states further that for salutogenic strengths to develop and be maintained "one must have grown up and continue to live in a sociocultural setting which has equipped one with a stable, complex, rich internal set of hardware and software – a set of fixed rules and flexible strategies".

The self, which *inter alia* consists of knowledge, norms, skills, rules and values developed through one's life long process of acculturation, will determine one's ability to handle complex input. The more mature the self, the more likely one's capacity to handle such complex input. The self is shaped through socialising agencies (Antonovsky, in Cooper & Payne, 1991:100).

According to Antonovsky (1987:89) the sense of coherence can be shaped over one's life span. The sense of coherence develops through the availability of the generalised resistance resources, such as social supports and a strong ego identity, which enable the individual to make sense of the countless stimuli with which one is constantly bombarded (Antonovsky, 1979:121).

a) Childhood

As early as infancy the sense of coherence is in the process of development. The extent to which the mother becomes "an inner certainty as well as an outer predictability" (Antonovsky, 1987:95) will play a significant role in the process of sense of coherence development. With the passage of time the infant may become persuaded that his/her world, physical and social, can be counted on not to be constantly changing, thus ensuring the development of a sense of coherence. Furthermore, by showing the infant by play, touch, concern and voice that "you really matter" also helps to strengthen the sense of coherence of the infant (Antonovsky, 1987:97). It is also important to consider the amount of over-load or under-load of emotional experience encountered by the infant when he/she makes a choice or a decision. If choice leads to punishment or rejection (over-load experience) then this could have a negative impact on the sense of coherence development. If choice leads to reward or reinforcement then the load-balance will enhance sense of coherence development. Much of the training of an infant should be around the development of a load-balance of emotional experience. Thus in infancy the sense of coherence is beginning to take shape.

b) Adolescence

As one enters adolescence, the "Sturm und Drang image of adolescence is indeed a dramatic characterisation of constant turbulence, confusion, self-doubt and marginality" (Antonovsky, 1987:101). At this stage one imagines oneself "to be too fat or too thin, or too dumb or too smart, or too confined or too free to walk the streets of the city or too young to do this or too old to do that". If messages from the world of the child were contradictory, how much more is this so for the adolescent? The problem confronting an adolescent in all cultures is "to put one's act together so as to develop a defined personality within a social reality which one understands" (Antonovsky, 1987:101). As a result of the pressures put on the adolescent as he/she enters adult life, the sense of coherence can at very best only have gained a tentative strength.

c) Adulthood

“It is with entry into adulthood, with long-range commitment to persons, social roles and work that the experiences of childhood and adolescence are re-enforced or reversed in both directions” (Antonovsky, 1987:107). The implications for this are that the strength of one’s sense of coherence will definitely be tempered by one’s life experiences up to and including adult life. The role that the work environment will play is thus significant in shaping the strength of one’s sense of coherence. According to Antonovsky (1987) most young adults go to work. In these social settings the adult will spend more than half of his/her waking hours for the next forty years or so. One is now on one’s own in a particular culture and society and, according to Antonovsky’s original thinking on the subject, it is in the period of early adulthood, that one’s location on the sense of coherence continuum becomes more or less fixed (Antonovsky, 1979:188). It is clear therefore that adulthood becomes a critical period for stabilising the strength of one’s sense of coherence.

d) Working years

The role that one’s work plays, however, in the development of one’s sense of coherence cannot be underestimated. It is in the context of this research that it plays a significant role. Antonovsky (1987:122) points out that a person who enters adulthood with moderate or weak sense of coherence and whose sense of coherence consolidates as moderate or weak will be severely negatively affected in middle age or later years if he/she experiences severe stress situations or what he refers to as generalised resistance deficits (GRD’s). Even the sense of coherence of a person, with strong sense of coherence in adulthood, whose degrees of freedom become limited, may not be able to succeed when thrust into situations imposing high GRD’s. Thus the impact of severely negative organisational environments can affect even a person with a well established sense of coherence. On the other hand, there is experimental evidence in research conducted by Gardell and Johansson (1981:25) in Scandinavian industrial plants, which suggests that a positive modification of the sense of coherence

can occur in a person where such person is encouraged to develop his/her potential and is permitted to exercise control over work processes in the plants.

From the above it is clear that one's sense of coherence develops and can be modified during the course of one's experiences in life.

3.2.2.2 *The components in the development of the sense of coherence*

In developing the sense of coherence concept, Antonovsky (1987:102) identified three core components which he called comprehensibility, manageability and meaningfulness. He found that each person he had identified as having a strong sense of coherence was high on these components in contrast to anyone having a weak sense of coherence. These components are the following:

- **Comprehensibility.** This refers to "the extent to which one perceives the stimuli that confronts one, deriving from the internal and external environments, as making cognitive sense as information that is ordered, consistent, structured and clear rather than as noise – chaotic, disordered, random and inexplicable" (Antonovsky, 1987:17). A person high on comprehensibility will expect the stimuli that he/she will encounter in the future to be predictable and explicable. The person high in comprehensibility believes that things will work out well; that events can be coped with, and challenges will be met. The person with a weak sense of coherence is negative about life.
- **Manageability.** Antonovsky (1987:17-18) defines this as "the extent to which one perceives that resources are at one's disposal and are adequate to meet the demands posed by the stimuli that bombards one". When he refers to "at one's disposal", Antonovsky (1987) refers to resources under one's own control, or resources controlled by legitimate others whom one feels one can count on, and whom one trusts (spouse, friends, colleagues, physician, God). A person who has a high sense of manageability will not feel victimised by events and will

not feel that life treats him/her unfairly. When untoward things do happen, such a person will be able to cope and not grieve endlessly. A person low on manageability is unable to cope with stressful situations.

- **Meaningfulness.** This refers to the extent that one is involved “as a participant in the processes shaping ones destiny as well as one’s daily experience” (Antonovsky, 1979:128). Formally, the meaningfulness component of the sense of coherence refers to the extent to which one feels that life makes sense emotionally and that some of the problems and demands, posed by living, are worth investing energy in, are worthy of commitment and engagement, are challenges that are welcome rather than burdens that one would much rather do without. The person classified as having a strong sense of coherence speaks of areas of life that are important to him-/herself, that one cares about, and that make sense in an emotional way. Events that happen in these areas tend to be viewed as challenges, as worthy of emotional investment and commitment. In contrast the person having a weak sense of coherence shows little indication that anything in life seems to matter.

3.2.2.3 *The sources of the sense of coherence*

In seeking an answer as to how a person is able to manage tension and prevent it from leading to stress, Antonovsky (1979:99) became interested in why concentration camp survivors and poor people managed to stay at a fairly high level of “health-ease”, notwithstanding their stressful situations. This led him to an awareness of the full significance in a person’s life of generalised resistance resources. The following are generalised resistance resources described by Antonovsky (1979:103-117) which are applicable to this research.

- **Artifactual - material.** This is the material resources generalised resistance resource such as access to money and wealth. Antonovsky (1979:106) regards this as important because money provides the material resources in life such

as shelter, clothing and adequate food. Money also makes one feel powerful. This generalised resistance resource is important in all cultures.

- **Cognitive - emotional.** This is an intrapersonal and emotional generalised resistance resource related to knowledge, intelligence and ego identity. The knowledge – intelligence dimension encompasses both information about the real world, and the skills that facilitate acquiring such knowledge. The generalised resistance resource which Antonovsky (1979:107) regards as crucial, at the emotional level, is what he refers to as ego identity, a feeling that one is capable of making a meaningful contribution to society (the researcher's own interpretation). Antonovsky (1979:109) defines the ego identity as "a sense of the inner person, integrated and stable, yet dynamic and flexible, related to social and cultural reality, yet with independence". Ego identity is related to one's self-image. According to Antonovsky (1979:109) a strong ego identity is a necessary pre-condition for a strong sense of coherence.
- **Valuative - attitudinal.** Antonovsky (1979:112) classifies these generalised resistance resources as coping strategies which the individual uses. These are rationality, flexibility and farsightedness. Rationality refers to an accurate objective assessment of the extent to which the stressor is indeed a threat. Flexibility refers to the availability of one's contingency plans and tactics and a willingness to consider them. (Antonovsky (1979) suggests that a strategy open to constant built-in evaluation and subsequent revision is often more successful than other strategies). Farsightedness is linked to rationality and flexibility, but goes beyond them in that it seeks to anticipate the response of the environment to the action envisaged by the strategy. It provides breadth and depth to the strategic plan, weighing up the consequences of the anticipated action steps. The valuative-attitudinal generalised resistance resources are important in planning and goal setting strategies.

- **Interpersonal - relational.** Antonovsky (1979:114) refers to these generalised resistance resources as social supports involving deep interpersonal roots such as marriage, close friends, church membership, informal and formal group associations. The strength of these as generalised resistance resources is a function of the extent to which the person feels committed to them. Kanter (1968:499) defines commitment as “the process through which individual interests become attached to the carrying out of socially organised patterns of behaviour which are seen as expressing the needs of the person”. Thus commitment involves a judgment that it is worthwhile for one to remain within the group; or that group membership is worthwhile because one feels affective ties to one’s group and its members; or that being with the group is good for the individual, because the group has sound norms; has a healthy way of doing things and its authority structure and goals are a means to goal achievements. Antonovsky (1979) does point out that there ought to be a reciprocal commitment from the group to the individual for commitment to act as a generalised resistance resource.
- **Macrosociocultural.** Antonovsky (1979:117) refers to Malinowski’s research on culture (from 1931) where he suggests that the cultural norms and the rules which control society’s behaviour play an important role as generalised resistance resources for an individual. Of particular importance are religious beliefs. In this research the rules and standards of the organisation play an important role in influencing the sense of coherence of an individual.

The next section relates to the sense of coherence in the organisational context.

3.2.3 The sense of coherence in organisational context

Evidence suggests that the experiences of work can and do influence one’s sense of coherence in terms of one being able to perceive the work environment as predictable and comprehensible, as manageable and as meaningful. Antonovsky (1987:110-118)

supports the notion that work has a significant role to play in shaping a person's sense of coherence. His view is that the sense of coherence develops over one's life span and one's role at work contributes significantly to this. Antonovsky (1987:112) states that if a person wishes to maintain a strong sense of coherence, then the person's "major field of activity (work) will surely contribute to this".

At first Antonovsky (1979:188) held the view that the sense of coherence develops and becomes stable in a person's formative and early adult years. Later however, he did concede that one's working life experiences do have an impact on the development and modification of one's sense of coherence, although it is unclear whether or not he based this assumption on empirical research. In support of this, Antonovsky (1987:107) stated: "the adolescent, at very best, can only have gained a tentatively strong sense of coherence which may be useful for short range predictions about coping with stressors. It is with entry into adulthood, with long range commitment to other persons, social roles and **work**, that the experiences of childhood and adolescence are reinforced or reversed in both directions". Antonovsky (1987) clearly indicates the relevance of the influence of work as a factor in the development of one's sense of coherence.

The notion that work is important in shaping one's self-image is also supported by Church (1996:52), who quotes from Ellul (1964:399): "work is an expression of life ... to assert that the individual expresses his personality and cultivates him-/herself in the course of his leisure, is to accept the suppression of half the human personality." Ellul's (1964) message is that a person's work is important in defining "Who we are", and that for many a person much of one's self-image and feelings of self-worth are associated with a given role, and/or function in an organisation. According to Church (1996:52) the nature of work itself is often one of the highest rated factors in organisation culture surveys suggesting that work plays a very significant role in human motivation. In support of this Antonovsky (1987:111) makes the following statement which underpins his later thinking that one's sense of coherence can be affected by happenings in the work environment: "Continued experience of participation in socially valued decision

making is the source of a feeling of meaningfulness in one's work. This is what Frankenhauser calls joy and pride in work. If there is joy and pride there will be a sense of 'it is mine', that 'I wish to do what I am doing'. The more one perceives the social valuation of one's work as meeting one's criterion of equity, the more likely one feels, this is mine". Research conducted by Coser (1963, in Antonovsky 1987:111) also suggests that meaningfulness is established when "one has a voice in what is going on around". In essence it means that the decision latitude of the worker is important in developing a sense of coherence. The worker who feels that it is within his/her realms of choice to choose the tasks, the sequence, and the pace of work, is likely to see work as meaningful. Having a voice in what one does leads one to wish to invest energy in it.

Kohn (1985:11-12), in discussing Antonovsky's later views, states that "there is accumulating evidence that job conditions affect the adult personality through a direct process of learning and generalisation. In short, the lessons of work are directly carried over to non-occupational realms, the fundamental sociological premise being that experience in so central a domain of life as work, must affect orientation to and behaviours in other domains as well". This statement by Kohn (1985) has specific relevance to this research because it suggests that work experiences affect one's personality and behaviour.

Antonovsky (1987:15-19) states further that experiences of appropriate load balance in one's work are decisive in determining the sense of manageability that one has in one's work environment. The formal social structure in which one works should be perceived as providing one with the appropriate environment and equipment one needs to do one's work well (knowledge, skills, material and equipment). Perceived resources are the key to the problem of overload in the salutogenic paradigm. Comprehensibility is achieved when one experiences that things fit together, that one is familiar with the roles of others, with alternative solutions and with the overall planning and goals of the team. This facilitates the development of having a comprehensive picture of one's world of work.

There is other research to support the notion that there is a link between the work environment and the development of a sense of coherence. This is based on the notion of "self-direction" at work. Kohn and Schooler (1982:1257), Miller, Slomczynski and Kohn (1985:593) found that self-directedness at work implies that one believes that one has the personal capacity to take responsibility for one's actions. A person who has this capacity is able to handle complex work, with minimum supervision, provided job conditions are conducive for the development of self-direction. Such a person achieves meaning from work.

Strümpfer (1995:81) cites other research which points to relationships between the sense of coherence and organisational variables. He refers to research carried out by Danana (1989) amongst a sample of black female nurses in Umtata, in which the sense of coherence correlated negatively with intensity of stressful job events, as well as positively with job satisfaction, quality for the nurse's patient care as rated by the supervising sister and with general well-being. Fritz (1989, in Strümpfer, 1990:267) reported on research he conducted on personnel in a finance company. He found the sense of coherence correlated negatively with two work stressors, namely, role ambiguity and role conflict. He also found that work-related outcomes of job satisfaction and life satisfaction correlated positively with sense of coherence.

Antonovsky (1991:96) considers the adult work role as the most decisive setting in shaping one's life experiences. The following are selected quotations from his writings which depict those aspects of the work environment which develop the greatest meaning: "job and pride in work; ... the extent to which resources are allocated to the individual worker; ... discretionary freedom which is taken to refer to the decision latitude of the individual worker; ... one's voice in the overall production process; ... in most work settings we can only feel that we work well when we perceive that those with whom we are interdependent also work well; ... the nature of social relations in the work group; ... shared values, a sense of group identification, and clear normative expectations".

Strümpfer (1995:85) supports Antonovsky (1987) regarding the finding that work experiences strengthen the sense of coherence. He quotes Antonovsky (1987:113) as saying that the majority of adults spend most of their waking hours in the work place. "It therefore becomes a dominant source of external as well as internal stimulation to be comprehended, managed and made meaningful".

According to Strümpfer (1995:81-89), a strong sense of coherence would thus, in all likelihood, result in the person:

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

Strümpfer (1995) states, "all else being equal, I can hardly see where such an orientation to work as outlined above can lead, other than to productive performance, recognition, regard, and promotion. In turn these experiences would become work-related GRR's that will strengthen the sense of coherence further".

It is clear from the above that the work environment plays a significant role in either increasing or decreasing the sense of coherence of an individual. Factors in the work environment that influence the behaviour and performance of an individual are the relevant generalised resistance resources.

3.3 INTERNAL-EXTERNAL LOCUS OF CONTROL

The section of Rotter's contribution to the salutogenic model will include the theoretical

framework of the generalised expectancies of reinforcement for internal and external control, characteristics surrounding the development of internal and external locus of control and internal and external locus of control in organisational context.

3.3.1 The theoretical framework of the generalised expectancies of reinforcement for internal and external control

One construct, which has received considerable attention in the study of individual behaviour in organisations, is the concept of locus of control of reinforcement (Erwee & Pottas, 1982:79). The theories which link inextricably with this construct are social learning theory and the reinforcement of behaviour which grew from social learning theory.

a) Social learning theory

Social learning theory (Rotter, 1954, in Palenzuela, 1987:438) provides the general theoretical background regarding the nature and effects of reinforcement. According to Meyer, Moore and Viljoen (1990:222) it integrates stimulus-response or reinforcement theories on the one hand and cognitive theories on the other. The variables it deals with are behaviours, expectancies, reinforcements and psychological situations. In terms of social learning theory, the potential for any behaviour to occur is a function of "the expectancy that the behaviour will lead to a particular reinforcement in that situation and the behaviour will lead to a particular value of that reinforcement" (Rotter, 1975:57). It is also hypothesised in social learning theory that expectancies for a particular kind of reinforcement will generalise from one situation to another when the two situations being described are similar. The whole principle of Rotter's internal-external control of reinforcements is based on the likelihood of more generalised than specific measures of expectancies (Lefcourt, 1982).

The concept of internal versus external control of reinforcement developed out of social learning theory (Rotter, Chance & Phares, 1972). The interest in this aspect of social

learning theory arose out of the observations that increases or decreases in “expectancies following reinforcements” varied, depending on the nature of the situation and also the characteristics of the particular person who was being reinforced. Researchers were interested in defining which variables might help them to predict how reinforcements change expectancies. Situational variables that produced the belief that reinforcement was under outside control were called external control situations, and the belief that reinforcement was under the subject's own control were called internal controls. The external situational parameters are linked to chance, while the internal situational parameters are linked to skills (Rotter, 1975:57).

That social learning theory played a major role in developing the concept of locus of control is illustrated by Rotter (1990:490) in the following words: “more specifically in several of our studies involving increments and decrements of expectancies following both positive and negative outcomes, a large number of our subjects were not raising their expectancies after successes or lowering them after failures. And we began to see a pattern of difference in situations in which the subject believed that success was dependent on one's own skills versus those situations in which it was clear that the experimenter was manipulating success or failure independently of the subject's behaviour”. In this regard, the principle of generalised expectancy of reinforcement in social learning theory is seen to play an important role in determining one's orientation towards either internal or external control of behaviour. The orientation is a factor of whether the expectancy of reinforcements is internally (through individual problem solving skills) or externally (through instruction of powerful others) determined. The more one learns to rely on one's own internal resources for motivation, reward and reinforcement, and the more such behaviour is generalised to other similar events, the more the reinforcement becomes internally generalised. The more one relies on some outside powerful others for reinforcement and reward of behaviour, and the more this is generalised to similar situations, the more the reinforcement becomes externally generalised.

b) Reinforcement of behaviour

In Rotter's social learning theory (Rotter, 1990:490) the concept of reinforcement is linked to that of expectancy, and a reinforcement acts to strengthen an expectancy that a particular behaviour or event will be followed by that reinforcement in the future. Rotter and Hochreich (1975:96) define expectancies as "the probability held by the individual that a particular reinforcement will occur as a function of a specific behaviour on his/her part in a specific situation or situations". Whether or not a behaviour will recur is a function of the importance of the reinforcement for the individual, as well as the expectancy that the individual will achieve a particular goal if he/she behaves in a particular way.

Rotter (1966:171) states that on the one hand reinforcement can be perceived by the individual as not being contingent upon his/her own actions but rather as a result of luck, fate, under the control of powerful others or as unpredictable (external locus of control of reinforcement). On the other hand, the individual may perceive that the event is contingent upon his/her own behaviour and attributes, abilities and skills (internal locus of control of reinforcement). Rotter (1966:1-28) hypothesises that the individual who believes that he/she can control his/her own destiny (internals) will behave differently in most situations from others, who believe that outcomes are controlled by luck or powerful others (externals). He cites research (1966:18-24) where it was reported that the internal differs significantly from the external in such behaviour as risk taking, quitting smoking and time needed to make difficult decisions. As early as 1899 Veblen (Rotter, 1966:1-28) stated that where there is a belief that chance or luck is regarded as the solution to one's problems such beliefs were characterised by less productivity and a general tendency towards passivity. Merton (1949:125) also states that there is a relationship between passivity and the belief in chance or luck (externality).

Expanding on the above, Rotter (1966:1-28) suggests that the role of reinforcement and reward has been universally recognised as crucial in the acquisition of skills and

knowledge. However, an event regarded by one as a reward or reinforcement may be differently perceived and reacted to by another. The difference is whether the individual regards the reward or reinforcement to be contingent upon his/her own behaviour (internal control) or whether the individual perceives the reward as being controlled by forces outside him-/herself, that may occur independently of his/her own reactions (external control) (Rotter, 1966:1-28). According to Rotter (1975:57) "The nature of the reinforcement whether positive or negative; the past history, sequence and patterning of such reinforcements; and the value attached to the reinforcement are crucial determinants of behaviour". These orientations correlate with other personality characteristics and behavioural tendencies. A person with an external locus of control is more easily influenced by another than a person with internal locus of control and internal locus of control is usually associated with a high need for achievement (Erwee & Pottas, 1982:83). Though locus of control is a relatively stable characteristic, anyone's orientation may change as a result of certain experiences. For instance, when a person is given a position of responsibility, internality increases. When a person's life is disrupted by uncontrollable events, such as the retrenchment of an employee in the age group 50-60, the person becomes more external in orientation (Baron & Byrne, 1991:515). In personal discussions between the researcher and Professor Rotter (Connecticut University, 1996), Rotter concurred that the orientation can and indeed does change depending on the circumstances. Rotter's (1975:57) view is that a person who can cope with change best has the appropriate skills to meet the demands of his/her environment successfully and tends to be inclined to an internal locus of control orientation.

3.3.2 Characteristics relating to the development of internal and external locus of control

The development of internal and external locus of control is based on a person's objective situation (Cooper & Payne 1991:80) and the behavioural consequences of action taken by an individual (Erwee & Pottas, 1982).

a) The objective situation

An important aspect determining the characteristics of internal – external control of reinforcements is the effect that the situation reinforcement has upon the behaviour of the person (Rotter, 1966:1-28). If the reinforcement is contingent upon one's own behaviour, then depending on whether the reinforcement is positive or negative, it will strengthen or weaken the potential for that behaviour to recur in the same or similar situation. If the person views the reinforcement as being outside of his/her own control, that is depending on fate, chance or powerful others, then the preceding behaviour is less likely to be strengthened, or weakened.

In this regard Antonovsky (Cooper & Payne, 1991) suggested that there is a close relationship between locus of control and learned helplessness. Where a person perceives an inability to determine his/her fate (for example in concentration camps) such a person develops external locus of control. On the other hand, where a person perceives a degree of freedom for effective action then such a person develops an internal locus of control.

Phares (1962:399-407) found that "increments or decrements" in behaviour following reinforcements were greater under skill instructions (where the individual used his/her skill to solve problems) than chance instructions (where the individual was told the outcome of a problem was due to luck). Research conducted by Rotter, Liverant and Crowne (1961:161) corroborated with what Phares (1962) had found, that subjects showed greater increments or decrements of behaviour following success and failure respectively under skill conditions, than under chance conditions. Where success is based on reward and where skills are used, there is a greater likelihood that the task or similar tasks will be repeated than where success is related to chance. In support of Phares' (1962:399) findings, research was conducted by Garson and Stanwyck (1997:247) in which they subjected a group of "internal" and "external" individuals to a situation in which incentive bonuses were given and then withdrawn. Their findings revealed that the output of an "external" with incentives actually surpassed that of an

"internal" with incentives. However when the incentives were withdrawn the level of output of the "external" dropped significantly, whereas there was little deterioration in output of the "internal". The results suggest that an "external" is reliant on extrinsic reward to ensure a sustained level of output, but once the incentive is withdrawn output will drop; the "internal", on the other hand, receives his/her motivation from the use of his/her skills and is not totally reliant on external sources to achieve results. The implications for this in the work situation are very significant. For the "internal" who sees his/her own skill and judgement as a means to solving problems, success is not entirely dependent on the existence or non existence of incentives. For the "external" performance is dependent on incentives, and the withdrawal of these will lead to loss in production.

To highlight the different characteristics reflected in the internal and external control of reinforcements, Phares (1962:402) conducted an experiment where he induced shock to subjects, who were requested to respond to nonsense syllables. The skilled group was told they could press the correct button, which could be learned, and thus escape the shock. The chance group were told they could press any button which may or may not avoid shock. The experimenter matched the number of shocks received by the skilled and chance groups. He found that the recognition thresholds for the nonsense syllables dropped significantly more in the skill-instructed group than on the chance instructed group although they had the same number of shocks on the same trials and for the same nonsense syllables. Phares' (1962) findings are important when assessing the difference in outcomes, following internal and external reinforcements. He concluded: "subjects who feel they have control of the situation are more likely to exhibit perceptual behaviour that will better enable them to cope with potentially threatening situations than subjects who feel chance or other non-controllable forces determine whether or not their behaviour will be successful".

b) Behavioural consequences of action

Differences in behaviour patterns of an "internal" and an "external" provide some clear

cut guidelines (Rotter 1966:1-28) of how general expectancies of outcomes of reinforcements are likely to govern future behaviour of such an individual. For a person who perceives that a task is controlled by the experimenter, or chance, past experience and skills are relied on less for solving the task. Consequently, it could be inferred that the "external" learns less and he/she may even learn incorrectly. He/she may even develop a pattern of behaviour which Skinner refers to as "superstitious" (Rotter, 1966:1-28). The "internal" on the other hand builds on his/her past experiences and greater learning takes place. Research conducted by Rotter, Liverant and Crowne (1961:161) found that there are different degrees of learning that take place between an "internal" and an "external", which is a function of the nature of the situation (problem solving versus chance), and the type of reinforcement which follows (self-induced or dependant on someone outside). The extent of learning that takes place is greater for an "internal" than an "external" and, as a result, outcome expectancies based on internal reinforcements are generalised and enhanced. In this regard Rotter (1966:18-24) found that an "internal" differs in behaviour from an "external" in such areas as risk taking, stopping smoking and time needed to make difficult decisions.

Research shown in table 3.1 reflects the behavioural outcome characteristics of an internally and an externally controlled individual. An individual whose orientations are in one or the other direction, develops certain behaviour patterns linked to these orientations which are reflected in the work situation. The behaviour patterns are likely to influence the amount of learning and commitment to work in the future (Payne & Manning, 1988:140).

Table 3.1: Behavioural characteristics of internal and external locus of control which are likely to reinforce an "internal's" and decrease an "external's" future learning

Study	Sample Size	Mean Age	Questionnaire	Variables studies	Results ($p < 0,05$)
Abdel-Halim (1981)	89M	45	Rotter	Leader behaviour and subordinate locus of control.	Internal subordinates report greater job involvement than externals under high leader initiating structure. Externals report lower satisfaction than internals under low leader consideration.
Anderson & Schneier (1978)	84 M 41 F	21,7	Rotter	LOC leader behaviour & leader performance among management students.	<ul style="list-style-type: none"> Internals exhibited behaviours characteristic of an instrumental task-orientated style. Externals exhibited behaviours pointing to a socio-emotional style.
Battis (1978)	50M 57F	19,5	Rotter	Relationship between LOC and instrumentality theory as predictor of academic performance.	<ul style="list-style-type: none"> Internals tend to perceive a stronger relationship between individual effort and academic performance. <p>Internals evidenced fewer fluctuations in perceptions of expectancy over time.</p>
Bhagat & Chassie (1978)	77M 60F	21 - 30	Rotter	Role of self-esteem & LOC in the differential prediction of performance, program satisfaction, & life satisfaction.	Internals had higher levels of academic performance, were more satisfied with their academic program and personal lives than externals.
Dailey (1980)	281M	38.2	Rotter (adapted)	LOC task characteristics and work attitudes.	Internals perceived greater task difficulty and variability in their jobs and had different work attitudes than externals.
Eicher (1980)	12M	36.8	Rotter	LOC and occupational structure.	Workers in highly routine, non-complex and closely supervised occupations exhibit a more external LOC than workers in more complex and less supervised occupations.
Faustman & Mathews (1980)	2,597	-	Clifford LOC	LOC and academic achievement (Sri Lanka).	Internal LOC correlated with superior performance on a scale of academic achievement.

Study	Sample Size	Mean Age	Questionnaire	Variables studies	Results ($p < 0,05$)
Frantz (1980)	960M	21	Rotter	Influence of early labour market experience on changes in LOC.	Increases in hourly earnings, additional labour market experience and large number of years of formal schooling increased feelings of internal control.
Haines, McGarth & Pirot (1980)	20M 20F	-	Rotter	LOC and persistence.	A higher degree of internality was associated with longer persistence on achievement or skill-related tasks.
Hammer & Vardi (1981)	258M 85F	42	Rotter	Effects of LOC on career self-management of workers.	In supportive organisational settings, Internals played a more active role in their career progress and had more favourable career experiences.
Khanna & Khanna (1978)	376 M/F	20 - 30	Rotter	LOC in India sex, age and religious differences	Women tended to be more external than men. Hindus are more external than non-Hindus; no significant age differences.
Maloney (1978)	104 M/F	40 - 50	Rotter	LOC, achievement motivation and academic achievement.	Significant relationships between LOC, field independence, high need achievement and academic achievement. Internal LOC was a reliable predictor of academic achievement.
Quaglieri (1980)	75M	Freshmen	Rotter	LOC - perceived utility of feedback.	Internals perceived more informal sources of feedback (eg. self and co-workers) as more useful. Externals perceived more formal sources of feedback (eg. supervisor) as more useful.

• M = Male

*Research results for selected locus of control studies with students and workers
(Erwee & Pottas, 1982: 81-82)*

* F = Female

* LOC = Locus of Control

The following findings can be reported from the above:

- An "internal" shows greater job involvement than an "external".
- An "internal" is more task-orientated than an "external".
- An "internal" shows more persistence on achievement or skill related tasks than an "external".

- An "external" is driven by a socio-emotional style.
- An "internal" shows a stronger relationship between effort and academic results.
- A woman tends to be more "external" than a man.
- An "internal" has higher levels of academic performance than an "external".

From the above it is evident that there are significant differences between the behaviour pattern of an "internal" and an "external" which impact on the future development of each. In relation to this Breed (1997:103) reported that an "internal" is able to cope better than the external in stressful situations.

3.3.3 Internal and external locus of control in organisational context

The effects of both the internal and external locus of control orientations of an individual in an organisational setting have been widely researched. This section will review relationships that have been found to exist between locus of control and work related issues. Research compiled by Erwee and Pottas (1982:81-82) reflecting the relationships between locus of control and work behaviour is reported in table 3.1.

a) Locus of control and achievement motivation

Research has established positive relationships between internal locus of control and achievement motivation. Rotter (1966) hypothesised that an individual high in need for achievement has a belief in his/her own abilities to determine the outcomes of his/her actions (internal locus of control). There has been empirical support for this hypothesis of Rotter. Naumes (1978, in Erwee & Pottas, 1982:89) found significant differences in internal locus of control between business school students, who expected to form a company and those who had no expectations. It was found that an "internal" is more likely to start a new company than an "external". The same research found negative correlations between measures of need for achievement and external locus of control. Durand (1975:76) also found a negative correlation between need for achievement and

external locus of control. Durand (1975) subjected black entrepreneurs to motivational training. Motivational training was associated with a decrease in externality and an increase in internality and achievement motivation. The research also found that a person with an internal orientation engaged in more business ventures than a person with an external orientation. In this respect, the research reported by Erwee and Pottas (1982:93) confirms these findings that a strong positive relationship exists between internal locus of control and achievement motivation in organisations.

b) Locus of control and relationships at work

Research carried out by Walton (1985:77-83), into employee commitment and participation in the work place, suggests that there have been significant developments in industry in the United States over the past decade, in transforming the philosophy of management, from one of management control to that of the involvement of an employee in the business processes. Systems are in place, aimed at greater information sharing, broad banding of jobs, paying for results, flattening organisation structures and giving an employee more responsibility in his/her work. In essence this is a way of devolving authority and decision making to an employee. It assists in the development of an employee's internal locus of control orientation.

Achamamba and Kumar (1989:83) investigated the relationships between job satisfaction and locus of control. They found significant correlations between a measure of job satisfaction (using the Job Descriptive Index of Smith, Kandall and Hulim (1969) to measure job satisfaction) and internal locus of control. Their findings suggest that the greater the internal orientation the greater the perceived satisfaction. "It is the attitude that one has toward his or her job which contributes to job satisfaction" (Achamamba & Kumar, 1989:85).

Research with teachers by Payne and Manning (1988:140-145), have also provided some very useful information regarding the effect of internal and external locus of control orientations in the workplace. They found that locus of control is a basic

personality dimension that has been found to correlate with a teacher's attitude, class room behaviour and student achievement. An internally oriented teacher is democratic, uses fewer disciplinary commands and encourages more self-directed activities by students. Their findings indicate that an internal is more confident and assertive, has greater self-esteem and has lower anxiety levels than an external. The researchers also found that self-instructional training, introduced for a teacher, was effective in changing the teacher's locus of control to a more internal orientation and thus making him/her a more effective teacher.

Rose and Medway (1981:375) found that classroom behaviour of an internal teacher is characterised by a high level of instructional efficiency. They defined instructional efficiency as behaviour involving fewer disciplinary commands given to students, lower rates of inappropriate student behaviour and higher rates of student self-directed activities. Their research also concluded that teacher locus of control and student achievement are correlated with achievement being positively related to teacher internality.

Research by Foley and Clifton (1990:46-57) found that the locus of control and perceptions of climate influenced the rate of participation in staff development activities of a college instructor. Research also revealed that the longer one works in the public-sector-colleges, the higher that person's external locus of control tends to be and the less inclined the person is to participate in self-development programmes. It was found that the cultivation in the colleges of a more internal locus of control orientation, with its attendant achievement orientation, is helpful in promoting educational and instructional excellence.

In the opinion of the researcher the concept of a learning organisation (Senge, Roberts, Ross, Smith & Kleiner, 1995:87, 193, 297) characterised by relationship building, developing strategies for personal mastery, building a shared vision and systems thinking can enhance the development of a person's internal locus of control.

Locus of control has an effect on one's performance and relationships at work. The "internal" is likely to be more enterprising, shows more initiative and achieves better results than an "external". The "internal" also develops more constructive relationships with subordinates, is more participative and attends to his/her own self-development.

3.4 SELF-EFFICACY

The section on Bandura's contribution to the salutogenic profile will include a section on the theoretical framework of self-efficacy, characteristics relating to the development of self-efficacy and self-efficacy in organisational context.

3.4.1 The theoretical framework of self-efficacy

The theoretical framework of self-efficacy is to be found in both social learning theory and social cognitive theory, although social cognitive theory is the main framework in which Bandura (1989:1175) places his theory.

3.4.1.1 Self-efficacy within social learning theory

In overall terms, the theoretical basis of self-efficacy falls within the broad framework of social learning theory, which explains how a person learns and develops within his/her social context (Kirsch, 1986:340). According to Rotter (1954, in Palenzuela, 1987:438) expectancy and the reinforcement value of outcomes, are the central constructs used to predict behaviour in social learning theory. Commenting on this, Kirsch (1986:342) points out that "in social learning theory, the probability of occurrence of a particular behaviour is hypothesised to be a function of the person's expectancy that the behaviour will lead to reinforcement and the subjective value of that reinforcement. In turn the value of a particular reinforcement is hypothesised to be determined primarily by the expectancy that it will lead to other reinforcements and by the subjective value of those other reinforcements". Important in social learning theory, therefore, is the assumption that success at a task is a form of reinforcement. The

decision by the individual to initiate a task is based on the assumption (expectancy) that he/she will be successful at executing a behaviour or the expectancy that successful performance will lead to other valued reinforcements. Kirsch (1986:342) points out that being successful at executing a self-initiated task is a reflection of self-efficacy. Rotter's (1966:1-28) discussion on locus of control was based on a distinction between the meaning of self-efficacy (skills based outcomes) and expectancy in chance situations. His distinction is important because the principles governing the acquisition and extinction of self-efficacy expectations differ from those governing changes in expectancies for chance reinforcement. It appears from the above analysis that self-efficacy "refers to the expectancy for success at a task on which success is perceived to be dependent on ability" (Kirsch, 1986: 343). The important point is that Rotter cannot be excluded from contributing to an understanding of the conceptual framework of self-efficacy and his research in the area provides useful guidelines in determining the important concepts of self-efficacy. It is clear that self-efficacy is related to an individual's personal involvement in skill-determined tasks and not to behaviour regulated by chance.

3.4.1.2 *Self-efficacy within social cognitive theory*

Bandura's (1989:1175) contribution to an understanding of self-efficacy is well grounded in social cognitive theory, which stresses the importance of one's own skills, capabilities and behaviour in determining performance.

Gist and Mitchell (1992:184) provide a definition of Bandura's (1977; 1986) self-efficacy theory: "Self-efficacy is a construct derived from social cognitive theory – a theory positing a triadic reciprocal causation relationship in which behaviour, cognition and the environment, all influence each other in a dynamic fashion". Furthermore, Gist and Mitchell (1992:183) quote Wood and Bandura (1989:408) who stated that self-efficacy refers to beliefs in one's capabilities to mobilise the motivation, cognitive resources and courses of action needed to meet given situation-demands. Self-efficacy is related to task-specific capability. According to Bandura (1977:193) "an efficacy expectation is the

conviction that one can successfully execute the behaviour required to produce outcomes” and “the strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations”.

Self-efficacy is one of several cognitive processes considered in one's self-regulation of activities, where an individual is able to determine his/her own behaviour in performing tasks. It has been found to influence the level at which a person sets his/her goals and the extent to which a person is committed to achieve the goals and the choice of activities in attaining the goals (Gist & Mitchell 1992:186). Furthermore, it is an important motivational construct. It influences an individual's choices, goals, effort, coping and persistence in the carrying out of tasks.

- **The model of triadic reciprocation**

The three aspects of social cognitive theory that are used by Bandura (1989:362) in developing his construct of self-efficacy are used to explain psycho-social functioning in terms of a triadic reciprocal causation relationship. According to Bandura (1989) the model of reciprocal determination describes how an individual's behaviour, his/her cognitive and other personal factors, and the external environment operate as interacting determinants that influence each other bi-directionally (refer figure 3.1). Through this a person is both a product and producer of his/her environment.

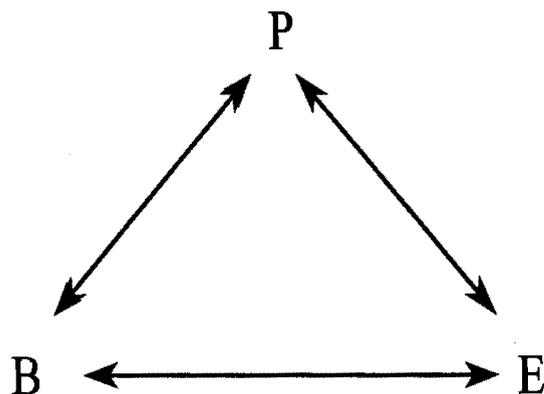


Figure 3.1: Triadic reciprocal causation

The above figure indicates the relations between behaviour (B), cognitive and other personal factors (P) and the external environment (E) (Wood & Bandura, 1989:362).

From an organisational perspective, the interactions of the above three elements in triadic causal relationships, are very important for the development of a person's social, cognitive and behavioural competencies, the cultivation of a person's beliefs in his/her capabilities and the enhancement of a person's motivation through goal systems, where the person is using his/her skills and capabilities in interaction with the environment. Within the context of self-efficacy, as being one's capability and desire to achieve task-related goals in the context of the triadic reciprocal nature of social cognitive theory, Gist and Mitchell (1992:189) formulated the following model of the self-efficacy – performance relationship.

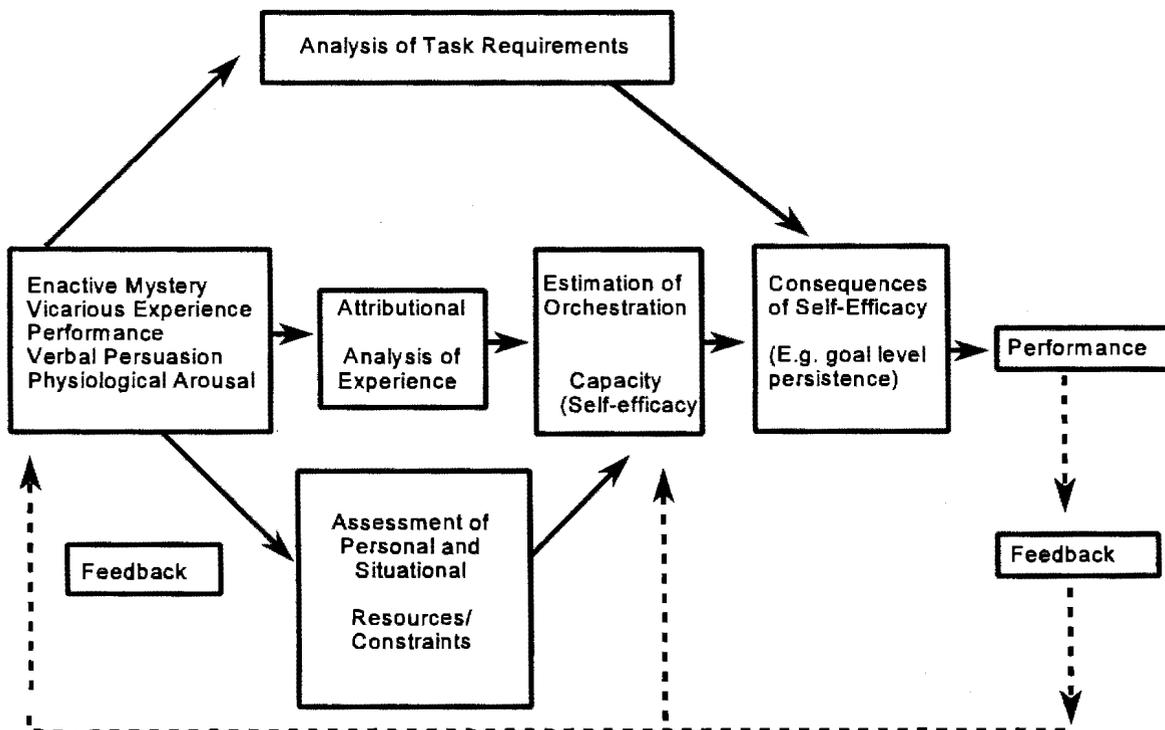


Figure 3.2: A model of self-efficacy-performance relationship (Gist & Mitchell, 1992:189)

In terms of the above, the following are important in the ultimate development of an individual's self-efficacy for goal attainment:

- an analysis of the task requirements which gives an indication of the degree of skills required to perform the task successfully;
- an attribution analysis of experience which involves the individual's judgment about why a particular performance level occurred (one's skills, hard work, or a deduction of the relevant skills and behaviours of a role model who performed the task well in the past); and what it will take to do well in the task in terms of ability and motivational components;
- an examination of an individual's personal and situation resources to enable him/her to perform a task successfully.

These assessment processes yield interpretative data that are used in a summary-level judgment process which defines self-efficacy: "the estimation of orchestration capacity". According to Gist and Mitchell (1992:190) self-appraisal of the events surrounding task performance is a process in which "different sources of information are weighted and integrated to form self-efficacy and that the relative weighting of information may vary across domain of functioning and situation circumstances". The judgments about efficacy are dependant upon the nature of the situations that a person is assessing and will determine the depth of the task demands, environmental support and constraints, and his/her own attributes and feelings when forming a self-efficacy judgment.

- **The role of the environment**

According to Bandura (1997:21), a high sense of personal efficacy develops in a responsive environment that rewards valued accomplishments, fosters aspirations and encourages productive engagement in activities. These conditions enable a person to exercise control over events in his/her life. This has important implications in the development of the performance model in this research, where similar team building dimensions will be shown to influence the level of self-efficacy of an individual.

The relationship between the environment and outcome expectations has an important role to play in the development of an individual's self-efficacy. There is a causal (linking relationship) between beliefs of self-efficacy and outcome expectations. Outcomes that a person anticipates will come from the environment in response to performance, determine the person's judgements of how well he/she will be able and permitted to perform in given situations (Bandura, 1997:21).

This is illustrated in the figure below.

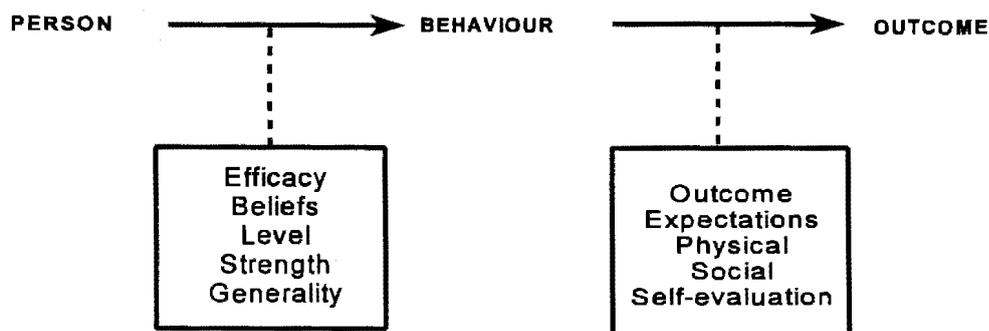


Figure 3.3: The causal relationship between personal efficacy and outcome expectations (Bandura, 1997:22)

In the above model the person's level of self-efficacy is based on judgments of his/her ability to organise and execute certain levels of performance. These judgments are formalised from perceptions based on his/her cognitive, affective and biological events of his/her behaviour and environmental events (Bandura, 1997:6) which influence each other bi-directionally.

The outcome expectancies tend to reinforce or have a negative impact on the level of self-efficacy. On the positive side, they include social reactions of others such as interest, approval, recognition, conferral of status and power. On the negative side they include disinterest, disapproval, social rejection and imposed penalties (Bandura, 1997:22).

According to Bandura (1997:37) perceived self-efficacy is not solely a measure of the skills one has, but a belief about what one can do under different sets of conditions with whatever skills one possesses.

3.4.2 Characteristics relating to the development of self-efficacy

In this section an analysis will be made of the important factors which influence the development of self-efficacy.

3.4.2.1 Principal sources of self-efficacy beliefs

This section will refer to the principal sources of self-efficacy that are applicable to this research.

According to Wood and Bandura (1989:364), self-efficacy beliefs can be constructed from four principal sources of information. These are enactive mastery experiences that serve as indicators of capability, vicarious experiences that alter efficacy beliefs through transmission of competencies through comparison with successful others, verbal persuasion and physiological and effective states from which a person can judge his/her strengths and vulnerability (refer figure 3.2).

- Enactive mastery experiences (performance accomplishments) are the most influential source of efficacy information, because they provide the best evidence of whether one has what it takes to succeed at a given task. Successes at a task build a strong belief in one's personal efficacy and failures at a task undermine efficacy beliefs. Tasks should not be too easy, but rather challenging enough for self-efficacy to develop. For this, sustained effort is normally required. Once strong efficacy expectations have developed through repeated success, the self-efficacy tends to generalise to other situations. This means that behavioural functioning can transfer to activities that are different from the one where self-efficacy was developed (Bandura, 1977:195). However,

Bandura (1977) does suggest that the more similar the activities are to the one where efficacy was developed, the stronger the generalisation effects. He also found that prolonged encounters that lead to behavioural improvements are more effective in building a level of self-efficacy than “distributed brief encounters that are likely to end before successful performance of the activity is achieved”.

- A person does not rely on enactive experience as the sole source of information about his/her capabilities. He/she also appraises his/her capabilities in comparison with how others are performing. Bandura (1997:86) calls this vicarious experience. He cites an example of vicarious experience when a person sees another perform threatening activities without him/her suffering any adverse consequences. This observation generates in the observer the expectations that he/she too will improve if he/she intensifies and persists in his/her efforts (Bandura, 1977:197). Bandura and Barab (1973:1-9) maintain, however, that social comparison with others is a less dependable source of information about one’s capabilities than direct evidence of personal accomplishments. Nevertheless, according to Kazelin (1975:716) the mere fact of observing someone perform activities that meet with success, does indeed produce greater behavioural improvements than witnessing the same performances modelled without any evidence of success.
- Social persuasion by others also serves as a means for strengthening a person’s beliefs that he/she possesses the capabilities to achieve task objectives. In this regard, Bandura (1997:105) states that this occurs when “significant others express faith in one’s capabilities”. Verbal persuasion is widely used to influence human behaviour because of its ease and ready availability. A person is led, through suggestion, into believing he/she can cope successfully with what perhaps has overwhelmed him/her in the past.

- Bandura (1982:127) maintains that a person relies partly on information from his/her physiological state on judging his/her capabilities to perform a task competently. A person reads his/her physiological activation in stressful situations as signs of “vulnerability to dysfunction” (Bandura, 1997:106). Since high arousal can debilitate performance, a person is more likely to expect success when he/she does not experience aversive arousal. The more stressed one feels the more negative one’s thoughts become and this leads to greater dysfunction.

COMMENT

The work environment plays an important role in determining a person’s self-efficacy. Goals should be challenging and achievable. One should be able to model one’s behaviour on good performers in the team. An encouraging supervisor will influence the achievement of one’s goals. A caring supervisor reduces the level of tension.

3.4.2.2 *Other sources of self-efficacy beliefs*

There are sources of self-efficacy which supplement the traditional sources referred to in 3.4.2.1. and can also be related to this research.

- **Goal attainment theory.** According to Bandura (1997:12), “explicit and challenging goals” increase motivation to achieve results. In this context, behaviour is positively motivated by “cognized goals” as opposed to it being diminished by “an unrealised future state”.

Bandura (1997) explains the motivational effect of goal setting, by maintaining that an individual is not a passive being in his/her environment. Instead he/she is capable of using his/her forethought for making behaviour purposeful. A person is motivated by future time events and as a result sets goals and plans, courses of action likely to achieve the desired outcomes. By thinking ahead and using self-regulative standards,

an individual can motivate him-/herself and guide his/her actions. A person thus possesses self-directive capabilities to exercise control over his/her thoughts, feelings and actions. Psycho-social functioning is therefore regulated by an inter-play of self-produced and external sources of influence. Being represented cognitively in the present, conceived future events (goals) are converted into current motivation of behaviour. Action is therefore motivated and directed by "cognized goals" (Bandura, 1989:1179). Bandura states further that a person seeks satisfaction from fulfilling valued goals and is prompted to intensify his/her efforts, if performance is substandard (Bandura, 1989:1180). If challenging goals are achieved, this will enhance the level of self-efficacy. If goals are too difficult and cannot be achieved, then this can have a negative effect on self-efficacy. The interplay between level of efficacy, goal setting and performance is very important in determining one's level of self-efficacy. This has significant relevance for an individual in an organisation, especially when considering the difficulty of tasks which an individual is required to achieve. In this regard, a belief that one's managerial talent is acquirable, rather than in-born, is conducive to a high level of personal development (Jourden, Bandura & Banfield, 1991), leading to more effective use of one's analytical strategies in meeting challenging goals (Wood & Bandura, 1989).

- **Attribution theory.** Attribution theory (Bandura 1997:85) suggests that information about one's past performance has motivational effects. An individual, who credits his/her past successes to personal capability and failures to insufficient effort, is more likely to undertake difficult tasks and persevere in the face of possible failure. In contrast, a person who ascribes failure to deficiencies in ability will put in less effort and give up quickly when he/she encounters difficulties (Bandura, 1997:123). A self-efficacious individual views goal attainments as personally controllable by the amount of effort he/she puts into the task.
- **Expectancy Value theory.** A person motivates him-/herself based on the results he/she expects to achieve from given courses of behaviour. The

strength of the motivation is governed by the expectation that he/she will achieve the desired results and achieving the results has an attraction. Bandura (1997:125) defines the concept as follows: "Expectancy value theory predicts that the higher the expectancy, that certain behaviour can secure specific outcomes, and the more highly those outcomes are valued, the greater is the motivation to perform the activity".

- **Regulation of affective states.** Research has been conducted to determine the effects of anxiety and depression on the thinking processes of people. According to Bandura (1997:153) "The inability to influence events and social conditions that significantly affect one's life can give rise to feelings of futility and despondency as well as anxiety".

Bandura (1997:157) suggests one way of developing a coping efficacy is through socially supportive relationships. According to him, "It is now well established that socially supportive relationships reduce vulnerability to stress, depression and physical illness". Research conducted by Major, Cozzarelli, Sciacchitano, Cooper, Testa and Mueller (1990:452), of women who suffered personal conflict following abortions for unwanted pregnancies, showed improved adjustment to society when they received the desired social support from family and friends.

The above is important because the role that a supportive environment plays in helping to develop self-efficacy in an individual is an important aspect in the performance model in this research.

- **Selective environments.** Bandura (1997:160) maintains that a person with a high self-efficacy chooses environments which are challenging. The less efficacious person avoids such environments and activities he/she believes exceeds his/her capabilities. The process of reciprocal causation between environment and individual (figure 3.1) determines the ultimate level of self-efficacy. For instance, in the early years of development the infant and the

environment operate as “reciprocal interactants” (Bandura, 1997). The parental enabling activities increase the child’s exploratory and cognitive competencies and the child’s response elicits parental responsiveness in the process of reciprocal causation (Bradley, Caldwell & Elardo, 1979:246). The point to note is that reciprocal causation between individual and environment is important at all stages of development of self-efficacy. The environment influences personal efficacy and vice versa.

COMMENT

These sources of self-efficacy can be related to the interface between the individual and the work environment. Goals are socially acceptable and valued by the team, the team enables the person to believe in him-/herself and his/her abilities, the team provides a socially supportive environment for the individual and the individual must reciprocate by showing he/she is capable.

3.4.3 Self-efficacy in organisational context

This section will review the relationships between an individual’s working environment (representing the external environment) and his/her self-efficacy.

Research, conducted by Coladarci, (1992:323), found significant relationships between a school’s teaching environment and a students behaviour. Bandura (1997), commenting on this research, maintains that “High expectations and standards for achievement pervade the environment of efficacious schools. Teachers in such schools regard students as capable of high scholastic attainments; set challenging academic standards for each student; and regard behaviours as being conducive to intellectual development”. The research also found that “efficacious schools”, not only endorse high standards, but back them up with mastery aids for success. In such schools a teacher adopts a resilient sense of instructional efficacy and accepts responsibility for his/her students’ academic progress. This research reflects the role of an efficacious leader in

any achieving organisation.

Wood and Bandura (1989:374) researched how an individual perceives the environment as being controllable by him/her. They found that when a person believes that the environment in which he/she is working is controllable on matters important to him/her, he/she is fully motivated to exercise his/her personal efficacy which enhances the likelihood of success. If a person approaches a situation as largely uncontrollable, he/she is likely to display low self-efficacy and fail.

One of the techniques used to increase levels of self-efficacy is enactive mastery (mastery modelling) of behavioural competencies. Latham and Saari (1979:239) used a technique to assist a supervisor develop the interpersonal skills required for effective supervision. In their research, Latham and Saari (1979) made use of video-tape modelling to teach a supervisor how to increase motivation, give recognition, correct poor work habits, discuss potential disciplinary problems, handle employee complaints and overcome resistance to changes in work practices. Each supervisor discussed and practised the skills in role playing exercises and developed the required skills. A strong belief in one's capabilities to exercise control over and influence events, has a significant influence in developing the strength of one's self-efficacy (Bandura, 1988:279).

Research has been conducted to determine the relationships between self-efficacy, goal setting and performance. Lee (1988:366-371) used telephone callers in a "Telefund programme", whose goal was to elicit funds from previous non-donors for a university fund raising campaign, to set goals and receive monetary incentives for goal achievements. Measurements of self-efficacy were made at various intervals. The research found that in 'before and after' trials both pledged amounts (mean amount before \$948 and mean amount after \$1508) and levels of self-efficacy increased significantly. The higher self-efficacy levels were associated with successful goal accomplishment, which is in accordance with Bandura's (1986) findings that there are positive relationships between self-efficacy and self-set goals. In the research, the

callers in the university telefund campaign set challenging yet achievable goals.

Research, also showing the relationships between self-efficacy, goal setting and performance in organisations, was conducted by Barling and Beattie (1983:41). They found that self-efficacy perceptions were strongly correlated to sales performance among life insurance agents. Similarly, research conducted by Locke, Frederick, Lee and Bobko (1984:241) in a laboratory designed to assess the links between self-efficacy, goal level and performance, established that the magnitude of self-efficacy was positively related to the goal level chosen and task performance. Taylor, Locke, Lee and Gist (1984:402) noted that self-efficacy was directly related to research productivity among university faculty members. Yet other research (Bandura, Adams & Beyer, 1977:124) found that self-efficacy is a better predictor of subsequent performance than past behaviour.

An aspect of goal setting, which has been researched with regard to developing competencies and self-efficacy, has been conducted by Bandura and Schunk (1981:586-596) with children who exhibited gross deficits and disinterest in mathematical tasks. They introduced a programme for each child, based on self-directed learning, to help each one improve his/her mathematical competencies. The research investigated the amount of learning achieved through setting of proximal, distal, or no goals at all. The researchers found that, under conditions of proximal goal setting, each child progressed rapidly in self-directed learning, achieved substantial mastery of mathematics and developed a sense of personal efficacy and interest in arithmetic activities that initially held little attention for each. They also found that distal goals had no demonstrable effect on mastery. The proximal goals provided standards against which each child could measure his/her performance. Distal goals are too far removed in time to provide sufficiently clear markers. The findings are relevant for goal setting in organisations.

Gist (1987:475) reported that feedback on performance has an important impact on self-efficacy perceptions. In this regard, Bandura and Cervone (1983:1017) reported

that where an individual generates his/her own feedback reporting system to a supervisor, such feedback is more effective in building self-efficacy, compared to an individual who is given feedback by his/her supervisor, without his/her own self-monitoring mechanisms. The view of the researchers, in this regard, is that the self-monitoring process appears to be equivalent to guided enactive mastery which leads to high self-efficacy and to high performance.

With the expansion of the global economy, and rapidly changing market environments, the modern workplace requires a highly adaptable employee, with multiple competencies, who can perform a number of different functions. Such an employee will require a high degree of self-efficacy coupled with enactive mastery programmes to acquire the new competencies (Bandura 1997:446). Furthermore, competitive economic forces are pruning hierarchies of bureaucratic management and increasingly operational decisions and management functions are being assigned to an individual, in an effort to improve productivity and employee satisfaction. Having each worker manage him-/herself, changes the model of supervisory management. Instead of exercising operational control a manager needs to operate as a facilitator providing the resources and support the team needs to do the work effectively (Stewart & Manz 1995:747). A manager who operates as a facilitator for productive teamwork needs to be self-efficacious.

The level of stress that one experiences at work has a negative impact on the individual's self-efficacy (Bandura 1997:464). Sources of stress relate to work overload, poor prospects of advancement and job insecurities arising from corporate re-organisations, retrenchments and mergers. Prevention and reduction of occupational stress requires intervention by both the individual and the organisation. Efforts to reduce stress, at the organisational level, should address the various ways in which employee's self-efficacy is undermined by work practices.

Bandura (1997:469) points out that a person's self-efficacy is influenced by the group of which he is a member. An individual depends on others for performing his/her tasks.

Each group member is affected by the beliefs, quality and performance of each co-worker. These findings are supported by Spink (1990:380), who found positive relationships between collective efficacy and team outcomes of a Canadian ice hockey team. Furthermore, research conducted by Hodges and Carron (1992:51) found that an individual, in a high collective efficacy group, had stronger expectations for success than an individual in a low collective efficacy group. Perceived collective efficacy is concerned with the performance capability of a social system (work team) as a whole.

COMMENT

The relationship between the individual and the work environment is important for the development of an individual's self-efficacy.

3.5 INTEGRATION OF THE CHOSEN CONCEPTS INTO THE SALUTOGENIC PROFILE AND THE PERSONALITY PROFILE OF THE OPTIMAL FUNCTIONING INDIVIDUAL

The salutogenic profile comprises the main properties of salutogenesis that determine the personality profile of the optimal functioning individual. In line with the thinking in this research, this section will describe the main properties of the salutogenic profile and the personality profile of the optimal functioning individual separately under the heading of each researcher. The chapter will conclude with an integration.

Commenting on personality, Cilliers (1988:16) points out that the characteristics of psychological optimality are numerous and that they can be meaningfully categorised into intra- and interpersonal characteristics. According to him, the two are interconnected with the interpersonal flowing out of the intrapersonal. Cilliers (1988) differentiates between the two types of characteristics and mentions that the intrapersonal characteristics relate to the cognitive, affective and the conative characteristics of a person. The interpersonal characteristics indicate how a person relates to other people with whom he/she comes into contact. This classification will be

used to determine the personality characteristics of the salutogenic person as provided in the literature by various theoreticians.

3.5.1 Salutogenic characteristics

Antonovsky's (1979) concept of sense of coherence, Rotter's (1966) concept of internal locus of control and Bandura's (1989) concept of self-efficacy are all personality orientations related to the development of one's personal psychological coping and growth mechanisms. These orientations form part of the salutogenic construct, which focuses on the health and wellness of individuals. Although salutogenesis was the term developed by Antonovsky (1979), in relation to the sense of coherence concept, it is quite clear that salutogenesis encompasses other coping mechanisms as well (Strümpfer, 1990). Important other orientations include Rosenbaum's (1988) concept of learned resourcefulness, Kobasa's (1982) concept of hardiness and Ben-Sira's (1985) concept of potency. These all address different functions in the salutogenic process. For the purposes of this section, mention will be made of the contributions of Rotter, Antonovsky and Bandura to a salutogenic profile on the grounds of Antonovsky's (Cooper & Payne, 1991) reference to these as the orientations providing the resilience that an individual requires to deal with stressors and psychological growth process. An analysis of the previous sections in this chapter suggest that these salutogenic strengths complement one another, although they focus on different aspects of personality functioning. The more of each of these strengths that an individual possesses, the greater will be the coping and growth of the individual in relation to his/her environment.

In the following three sections, the researcher will first evaluate the main salutogenic properties of each concept and then compile the personality profiles of the optimal functioning individual that best represent these.

3.5.1.1 *Sense of coherence*

The properties and personality profile will be discussed.

The properties of sense of coherence

Antonovsky (1987:15) maintains that the sense of coherence (or meaning that one derives from life) is a coping mechanism which places the person on the healthy end of the ease/disease continuum. The closer one is to the healthy end of the continuum, the stronger is one's sense of coherence. The stronger the sense of coherence, the healthier and more resilient to stress the individual will be. One's sense of coherence develops in response to the view one has of one's environment. This inner strength is based on the extent to which an individual is able to comprehend the meaning of stimuli, in the environment, as being ordered and predictable. It is also based on one's views that the events and happenings are bearable and that the events can be coped with in terms of a balance between load and overload. It is also determined by whether or not a person sees meaning in what he/she is doing and is therefore prepared to commit him-/herself emotionally to what is happening. The more positive the approach of the individual in these areas, the higher the level of the sense of coherence and the healthier and more resilient the person will become. Antonovsky (1979:102) points out that the sense of coherence is strengthened through the existence of generalised resistance resources, which the individual perceives as providing support to him/her against any potential stressors in the environment. These are classified into three broad areas. He refers to these as adaptability on the physiological, behavioural, psychological, cultural and social levels, profound ties to immediate others and commitment of institutionalised ties between the individual and the community. The extent to which these are present and available to the individual will determine his/her sense of coherence.

The personality characteristics

These will be discussed in terms of Cilliers' (1988:15) definition. Antonovsky's (1979:124) definition of sense of coherence implies a number of intrapersonal and interpersonal characteristics.

Intrapersonal characteristics

These will be discussed in terms of the cognitive, affective and the conative characteristics.

- **Cognitive characteristics**

The main concept that Antonovsky (1987:16-17) makes mention of in this connection is comprehensibility. According to him such a person will view the stimuli from his/her environment as being ordered and predictable and he/she can make cognitive sense of them. Furthermore, Antonovsky (1979:107) makes specific mention of cognitive-generalised resistance resource, which enables the person to understand his/her world, through gaining informative knowledge about it (refer 3.2.2.3). The understanding of the norms and rules which control behaviour in society and which Antonovsky (1979:117) calls the macrosociocultural generalised resistance resource, is a further cognitive strength, which assists the person in developing a strong sense of coherence.

- **Affective characteristics**

The main concept which Antonovsky (1979:128) mentions in this connection is meaningfulness, which he refers to as processing one's daily experiences in areas that are important and which the person cares very much about, so that they make sense to the person in an emotional way. Antonovsky (1987:22) maintains that this meaningfulness is the most important concept in the sense of coherence.

The generalised resistance resource which Antonovsky (1979:109) regards as important, at the emotional level, is what he refers to as ego-identity. He defines this as "a sense of the inner person, integrated and stable, dynamic and flexible, related to the social and cultural reality". A strong ego-identity is a pre-condition for a strong sense of coherence. The optimal functioning person functions in an integrated and stable way. The person is aware of his/her emotions, is able to express emotions in a mature manner and is not afraid of his/her emotional experiences.

- **Conative characteristics**

The main concept which Antonovsky (1987:17-18) refers to in this instance is manageability. This is seen by the individual as being in possession of adequate resources to be able to cope with the many demands that he/she faces in the environment. In this way the individual does not become a victim of society and is in control of his/her circumstances. The person can manage the demands in his/her work environment and is able to handle stressful situations at work which occur in various forms.

The generalised resistance resource, which Antonovsky suggests enables a person to cope in this area, is flexibility and farsightedness (refer 3.2.2.3) – being able to anticipate future events. The optimal functioning individual achieves goals through a high ordered planning strategy.

Interpersonal characteristics

The generalised resistance resource that relates to this characteristic is the interpersonal-relational generalised resistance resource (Antonovsky, 1979:114). It concerns the meaningful social ties that a person develops with others, such as marriage, close friends, the church, formal and informal groups. The optimal functioning individual has the ability to form stable relationships with different groups of people. He/she adjusts well socially. He/she has good work relationships with team members.

3.5.1.2 *Internal-External locus of control*

The properties and personality profile will be discussed.

The properties of locus of control

Rotter's (1966:1-28) locus of control relates to the generalised expectancies of outcomes of reinforcements. The essential features of this orientation are that the reinforcement of outcomes is the result of either one's own abilities and skills (internal locus of control), or some outside controlling force, or chance, or luck (external locus of control). Rotter (1966:1-28) suggests that resilience and growth take place in situations where the individual is personally responsible for the reinforcement of his/her outcomes. In such instances, where the individual uses his/her own skills to solve problems, his/her reinforcement of control is internal. Successful achievement of results reinforces the positive outcomes and increases the individual's levels of confidence and competence. It is most likely that he/she will attempt the same or similar actions in the future. The individual's coping and problem solving mechanisms for similar generalised activities are also increased. Positive successful reinforcement of internally controlled outcomes develops one's self-efficacy particularly where outcomes are the result of the use of one's skills.

The personality characteristics

These are based on Cilliers' (1988:15) classification.

Intrapersonal characteristics

These will be discussed in terms of the cognitive, affective and conative characteristics.

- **Cognitive characteristics**

According to locus of control theory, a person is placed in a situation where he/she is able to question his/her assumptions regarding the source of reinforcement of behaviour (Rotter, 1966:1-28). The optimal functioning individual makes cognitive sense of information and processes information intelligently in order to make a reasoned decision about a course of action (Lefcourt, 1982). His/her decisions are based on problem solving skills and the experience of achievement provides the energy to achieve further.

- **Affective characteristics**

According to Anderson and Schneier (1978), the optimal functioning person is committed to his/her work, identifies with his/her work and accepts responsibility and ownership at work. He/she is satisfied with his/her role. The individual displays confidence, assertiveness and has good self-esteem.

- **Conative characteristics**

Locus of control is related to performance. A person with internal locus of control displays behaviours such as task focus, perseverance and achievement-drive at work (Haines, McGarth & Pirot, 1980). The optimal person displays a drive to achieve goals in a problem solving manner. His/her focus is on managing a situation constructively and with a purpose.

Interpersonal characteristics

The optimal functioning person has well developed relationships with others. He/she encourages self-directed activities in a person with whom he/she makes contact; such as involving that person in decision making and self-development programmes (Payne & Manning, 1988). The individual displays mature interpersonal and social behaviour

with regard to feedback on performance and communication with his/her supervisor.

3.5.1.3 *Self-efficacy*

The properties and personality profile will be discussed.

The properties of self-efficacy

Bandura's (1989:1175) concept of "self-efficacy" is an inner coping mechanism against stress in the environment and a source mechanism for psychological growth. Based on the principles of social cognitive theory (which explains the triadic reciprocal relationships between the individual's behaviour, the cognitive functioning and the environment), self-efficacy relates to the skills, competencies and capabilities to develop the confidence to carry out tasks successfully. There are various ways in which efficacy beliefs are strengthened and, in this regard, enactive mastery, modelling successful behaviour, persuasion by important others and physical well-being are some of the noted techniques for strengthening this orientation. It is also strengthened through challenging goal setting and achievement of results, in an enabling environment. Efficacy strengths facilitate resilience against stress and enable growth and learning.

The personality characteristics

These are based on Cilliers' (1988:15) classification.

Intrapersonal characteristics

These will be discussed in terms of the cognitive, affective and conative characteristics.

- **Cognitive characteristics**

The self-efficacious person makes mature cognitive judgements about a task and understands how to achieve challenging goals because this is where he/she develops his/her self-image. The person can comprehend the cognitive resources to meet situational demands. The individual understands where the source of efficacious behaviour is situated.

- **Affective characteristics**

In self-efficacy theory (Bandura, 1997:21), there is a significant relationship between the environment and the level of self-efficacy, particularly in terms of one's personal development and the handling of stress. The self-efficacious person identifies with the organisation's goals, is personally involved with setting his/her work goals and is emotionally committed to the task at hand. He/she is satisfied with his/her role in the organisation.

- **Conative characteristics**

Self-efficacy is an outcome based personality orientation. According to Bandura (1997), there is a causal link between beliefs of self-efficacy and outcome expectations. A person with a high level of self-efficacy has an optimistic view of his/her effectiveness and views success as a challenge. He/she derives his/her energy from the challenges and is in control of situations relating to his/her performance. The individual sets challenging goals based on his/her view of his/her previous performance and attributes, and achieves the goals.

Interpersonal characteristics

Bandura (1997:158) stresses the significance of social support for the development of socially efficacious behaviour through one's contact with others. The optimal functioning

individual derives satisfaction through meaningful social contact and his/her interpersonal relations with others are well developed and handled in a goal oriented manner. The source of self-efficacy comes from meaningful work contact with colleagues in the pursuance of goals.

3.5.2 The integration of the salutogenic profile

In this section an attempt will be made to integrate the properties of the salutogenic concepts and combine the personality characteristics of the optimal functioning person into an integrated personality profile. It will be done in the context of combining and integrating the essential characteristics, as presented by the three theorists above namely, Antonovsky, Rotter and Bandura.

For the purposes of this research the properties of a sense of coherence, internal locus of control and self-efficacy act as resilience resources for an individual, and serve as the basis of the personality of the optimal functioning individual. The theoretical stand points of each has been provided which means that, in this section, there will not be reference to source material but merely an extraction of the salient features.

3.5.2.1 The properties of the integrated salutogenic profile

The researcher will concentrate on the environment properties that influence salutogenic thinking so as to be congruent with the line of thinking in this research. The principle focus of the research is the relationship between team building and salutogenic orientations. According to Antonovsky, the generalised resistance resources are important determinants of the sense of coherence. Important to this research are the macrosociocultural (the norms and rules of society), the cognitive-emotional (acquiring knowledge from the real world), the interpersonal-relational (meaningful social contacts) and the valutive-attitudinal (farsightedness and flexibility) generalised resistance resources. An individual's stress control and personal growth are derived from these. The principle focus of locus of control theory is the source of

reinforcement of behaviour. A person with internal locus of control will use his /her inner resources to solve problems, but these develop optimally in a supportive and structured environment, where he/she is given responsibility. In self-efficacy theory, the beliefs that one has in one's abilities to perform a task reflect the beliefs that one has about one's performance, and the goal setting environment. The individual understands the goals. He/she is involved in setting them and they are perceived to be fair and challenging. The achievement of goals takes place in a supportive environment, where resources are available. In terms of social cognitive theory, the relationship between the individual and the environment is a reciprocally positive one.

3.5.2.2 *The personality profile of the optimal functioning individual*

These are based on the Cilliers' (1988:15) classification.

Intrapersonal characteristics

The intrapersonal characteristics of the salutogenic personality are presented as cognitive, affective and conative.

- **Cognitive characteristics**

Comprehensibility is one of the dimensions of the sense of coherence concept and the person perceives stimuli from the environment to be ordered and predictable and as such the person can make sense of them in a cognitive-emotional manner. Understanding the norms and rules of the organisation creates certainty in the mind of the person.

The cognitive dimension of locus of control relates to the information source of the person and he/she is able to make mature decisions regarding the reinforcement of behaviour. The internal uses his/her problem solving skills based on effective planning, flexibility and foresight and understands that his/her successful decisions enhances

his/her self-image and ego-identity.

Self-efficacy is one's cognitive judgement that one has the abilities to perform a particular task, taking into account the difficulty of the task, past performance and the availability of resources both internal and external. Achievement of tasks is important, and the individual is driven by personal ambition to achieve challenging goals.

All the above relate to sources of information which enable a person to make sense of his/her environment, and which stimulates him/her to take a reasoned decision regarding a course of action. The optimal functioning person is able to make sense of such information and use it constructively.

- **Affective characteristics**

Meaningfulness, which forms part of the sense of coherence dimension, relates to the person's ability to perceive life as emotionally meaningful; and it is critical to the development of the sense of coherence. Ego-identity relates to an integrated and stable inner person, and one's spontaneous emotional interaction with others. Such a person is emotionally mature, and identifies with the goals of the organisation.

The person with an internal locus of control identifies with the tasks at hand; and displays a mature and integrated way in dealing with them. As a result, such a person portrays a sense of satisfaction in these circumstance. He/she is confident, assertive and has a good self-esteem.

A self-efficacious person is emotionally committed to the achievement of results, knowing that he/she has the capabilities to perform competently. The individual feels satisfied that he/she is capable of achievement of the goals he/she sets for him-/herself.

The above are indicative of a person who is able to handle his/her work in an emotionally mature manner. The optimal functioning person is able to make emotional

sense of the stimuli, with which he/she is confronted in the environment, and has a sense of emotional fulfilment.

- **Conative characteristics**

Manageability, as a dimension of the sense of coherence, is the feeling that one has that one is able to cope with the many demands placed on one from one's environment with one's internal and external resources. The internal resources of flexibility and farsightedness enable a person to cope.

A person with internal locus of control possesses characteristics of drive, perseverance and achievement motivation, which enables him/her to achieve results in a problem solving manner. In so doing, the person is able to adjust to his/her environment in a mature way.

Self-efficacy is a performance-based personality orientation. The person with high self-efficacy believes that he/she has the ability to achieve challenging goals and indeed achieves them. Such a person is able to cope with the challenges of life.

The above characteristics enable a person to meet the challenges of life; to set and achieve goals; and to cope with problems. The optimal functioning person will view problems as challenging, and will develop techniques to solve problems. He/she has a well developed self-image.

Interpersonal characteristics

The person views social contacts as being very important. Such a person develops good relationships in marriage, with friends, with the church, and with other groups of people. In the work situation the person forms good relationships with fellow workers and these relationships help him/her to achieve objectives.

The person with internal locus of control has a healthy self-esteem and in his/her interaction with others adopts a positive relationship, encouraging the self-directed activities of others.

The self-efficacious individual has well developed social ties with others, thereby enhancing his/her socially efficacious behaviour. The self-efficacious person interrelates with others in a mature way.

The optimal functioning person has a healthy and mature relationship with his/her social contacts.

COMMENT

In summary, it can be stated that the salutogenic profile refers to optimal functioning on both the intra- and interpersonal levels. At a cognitive level, the person is able view information from the environment in a positive and constructive manner, and to use the information in mature decision making. At the affective level, the person is at one with him-/herself, is confident, self-fulfilled, and views issues in an emotionally mature manner. At the conative level, the person is able to make use of his/her inner resources to cope; solve problems; and achieve results. The interpersonal characteristics reflect a person who is able to form meaningful relationships with others at work, and in society.

Herewith the second aim of the literature review has been fulfilled, namely to create a salutogenic profile and the personality profile of the optimal functioning individual.

3.6 CHAPTER SUMMARY

This chapter related to a discussion of the salutogenic concepts that lead to the creation of the salutogenic profile and the personality profile of the optimal functioning individual. The work of three theorists was discussed and analysed, namely Antonovsky, Rotter

and Bandura. For each of these an analysis was made of the theoretical frameworks of the concepts in the field of salutogenesis, the dimensions of each concept were discussed and each concept was reviewed within the context of an organisation. Finally, the properties of the salutogenic profile were discussed and the personality profile of the optimal functioning individual was developed.

CHAPTER 4

THE WORK PERFORMANCE PROFILE

The aim of this chapter is to create a work performance profile and the personality profile of the optimal performing individual as a function of salutogenic thinking. This represents the third step of phase one of the research methodology (refer 1.7).

To meet this aim the following method will be used. First an analysis will be presented of the theoretical framework of performance criteria development. Secondly an analysis will be made of the performance criteria dimensions pertaining to this research. Thirdly the argument for the use of a self-appraisal as a meaningful performance indicator related to salutogenic thinking will be presented. Finally, the work performance profile and the personality profile of the optimal performing individual will be developed.

BACKGROUND

Performance is an integral part of understanding the dynamics of the salutogenic concepts, particularly self-efficacy (Gist & Mitchell, 1992:189). An understanding by the individual of the criteria against which he/she will be measured and his/her judgement about the performance through self-appraisal is the essential link between salutogenesis and performance (Lane & Herriot, 1990:79). A clear understanding by the individual of the establishment of performance criteria is important so that he/she can make a reasoned judgement on his/her performance. The chapter will consider the development of the work performance profile from the perspective of the individual's understanding of how he/she measures up to the criteria of the standards of performance based on his/her view of his/her performance through his/her own self-appraisal. This becomes the link with salutogenesis. According to Garland (1988:383), self-appraisal of performance is an important function acting as a cognitive mediator between the feedback on one's performance, one's level of self-efficacy and future goal-setting. The work performance profile becomes a significant concept in the overall salutogenic construct in the performance model.

The chapter will be arranged in four sections. The first section will deal with the theoretical framework of performance criteria development. The second section will deal with the performance criteria in this research. The third section will review the self-appraisal process in the context of measuring performance and its relationship with self-efficacy. The fourth section will report on the work performance profile.

4.1 THE THEORETICAL FRAMEWORK OF PERFORMANCE CRITERIA DEVELOPMENT

The definition of performance criteria, problems experienced in criteria development, the development of performance criteria, behaviour and outcome criteria and the use of multi or composite criteria measurements, will be discussed in this section.

4.1.1 Definition of performance criteria

Cascio (1991:50) defines performance criteria "as standards that can be used as yardsticks for measuring an employee's success or failure". According to Cascio (1991:50) criteria in measurement are used for both predictive and evaluative purposes, and in both cases they represent that which is both important and desirable. These can either be measures before a decision is taken about the person (predictor), or they can be the evaluation standards to measure performance after an event (evaluative). Naylor (1983, in Landy, Zedeck & Cleveland, 1983:299) makes reference to two types of performance models involving criteria measurement. The one is the predictive model which is used by American psychologists in selection and placement, and the other is the evaluative model where the purpose is to provide a standard of performance against which the individual's behaviour can be compared. In this research emphasis will be given to evaluative process as a basis for the individual rating his/her performance.

4.1.2 Problems experienced in criteria development

Cascio (1991:50) has reported that “adequate and accurate criterion measurement remains a fundamental problem in personnel psychology”. The challenge in performance measurement therefore is to develop suitable criteria that are appropriate for the situation. In this regard, he has reported that there has been insufficient research pertaining to the reliability and dimensions of criterion development, and he points out that this has posed a problem in the field. Furthermore, he states that “the challenge is to develop theories, concepts, and measurements that will achieve the objectives of enhancing the utility of available procedures and programmes, and deepening our understanding of the psychological and behavioural processes involved in job performance. Ultimately, one should strive to develop a comprehensive theory of the behaviour of men and women at work”. Wherry (1957) reported forty years ago already that psychologists are working in “the dark ages of criteria” suggesting that there needs to be clearer thinking, more in-depth theorising about criteria, and better identification of the goals of criterion measurement.

Spangenberg (1994:1) also reported difficulty in establishing sound criteria for measurements of performance. He conducted research to assess the success of performance management systems in a number of high profile South African organisations. In his research, he reported that some of the reasons why performance management systems fail in their objectives, are that performance standards, against which an individual’s performance is measured, are unclear, and in some cases unrelated to the overall company’s objectives. Other problems that were highlighted in his research related to a manager not being aware of the day-to-day functioning of his/her subordinates. Hence, performance assessment is often not related to agreed performance criteria. Furthermore, it was reported in the research that, in many instances, there was a lack of clarity of what satisfactory performance entailed.

Bevan and Thompson (1991:36) also found little evidence to show that improved organisational performance was related to the operation of a formal performance

management system, based on sound criteria measurement. A reason they give is that organisational effectiveness is affected by a wide range of factors, and that one really needs to know exactly what one is trying to measure in order to obtain some conclusive results. The point that these authors are making is the following. Unless one can establish suitable criteria for measurement based on clear thinking, and better identification of goals, it will be extremely difficult to evaluate the performance of an individual. Landy and Zedeck (1983) mention that the measurement of performance has occupied the attention of applied psychologists for several decades. Nevertheless, with all the research that has taken place, the activity of performance measurement still encounters numerous problems, such as bias in instruments, bias in evaluators, unreliability and changing definitions of success.

It appears that the main problem relates to the establishment of agreed, and well thought through criteria against which an individual's performance can be measured, and which the employee is convinced are fair measures of performance. There is a need therefore to identify suitable criteria for performance measurement, so that the manager and the subordinate are clear about how performance will be assessed.

4.1.3 The development of performance criteria

Cascio (1991:51) suggests that one of the ways for establishing good criteria for performance measurement is to make an in-depth study of the suggested criteria by researching the relevant literature and formulating suitable theories. In this connection, Loubser and De Jager (1995:1-6) conducted research, using the theoretical input of other researchers to determine the criteria which they believed would contribute to the successful performance of management at different levels in an organisation. They found that for senior management the main criteria are team building, decision making, strategic planning and delegation. For middle management the critical criteria are perseverance, client orientation and decision making, whereas for junior management these were perseverance, client orientation and co-operation. The basis of their research was thus formulated on the findings of other researchers. Table 4.1 presents

criteria for management success based on the views of various researchers which Loubser and de Jager (1995:1-6) used in their research.

Table 4.1: Criteria for management success (Loubser & De Jager, 1995:2)

Katz (1974)	Schroder (1989)	Boyatzis (1982 and Cunnington (1985)	DDI (Targeted Management, 1984)
Conceptual Skills	Information search Concept formulation Conceptual Flexibility Pro-active orientation	Deductive use of concepts Conceptualisation Logical thinking Pro-activeness	Analytical ability Initiative
Interpersonal/ Human Skills	Interpersonal search Management of interaction Developmental orientation Impact Self-confidence Presentation ability Achievement orientation	Stamina and adaptiveness Self-control Perceptual objectivity Self-evaluation Management of group processes Concern for sound relations Development of others Positive esteem Concern for impact Use of socialised power Self-confidence Spontaneity Verbal presentations Effectiveness orientation	Individual leadership Group leadership Judgement (including firmness) Planning and organising Management of job (including time and self) Impact Control Delegation Development of sub-ordinates Management motivation Energy Written communication Oral communication (including listening and sensitivity) Verbal presentation Stress tolerance
Technical skills	Specialist/Technical knowledge	Specialist knowledge	Technical knowledge and skills

Loubser and de Jager (1995) refined the data they obtained from their research and through factor analysis found that items, clustering into the factor "financial and business management", were found to be more important for senior management, whereas items, clustering into a factor "operations management" were more important for middle and junior management.

Cascio (1991:53) suggests that whether one is predicting or evaluating performance, any criterion of measurement should represent something important and desirable. According to him a sound criterion therefore, is an operational statement of the goals or desired outcomes of the programme or event being studied or measured. In research which he conducted, he created a generalised list of criteria that can be used to measure individual and organisational performance. These are included in table 4.2.

Table 4.2: Performance criteria (Cascio, 1991:52)**Output measures**

Units produced
 Number of items sold
 Dollar volume of sales
 Number of letters typed
 Commission earnings
 Number of candidates attracted (recruitment program)
 Readership of advertisement

Quality measures

Number of errors (coding, filing, bookkeeping, typing, diagnosing)
 Number of errors detected (inspector, troubleshooter, service person)
 Number of policy renewals (insurance sales)
 Number of complaints and dissatisfied persons (clients, customers, subordinates, colleagues)
 Rate of scrap, reworks, or breakage
 Cost of spoiled or rejected work

Lost time

Number of occasions (or days) absent
 Number of times tardy
 Length and frequency of unauthorised pauses

Personal turnover

Number of discharges for cause
 Number of voluntary quits
 Number of transfers due to unsatisfactory performance
 Length of service

Trainability and promotability

Time to reach standard performance
 Level of proficiency reached in a given time
 Rate of salary increase
 Number of promotions in a specified time period
 Number of times considered for promotion
 Length of time between promotions

Ratings of performance

Ratings of personal traits or characteristics
 Ratings of behavioural expectations
 Ratings of performance in work samples

Cascio (1991:53) mentions with regard to criterion measurement that there are two different types of criteria. There are conceptual criteria which measure issues in a simplistic and straightforward manner. There are also ultimate criteria which measure issues in a more comprehensive form, namely a salesman's entire sales history during his/her tenure with an organisation. The important point is that conceptual criteria (which are commonly used) can be measured along different dimensions namely, psychological dimensions (skills in human relationships), ecological dimensions (relationship between a person and his/her environment, such as a worker's output under varying conditions of heat, noise and light), physical dimensions (physiological cost in calories used per minute) and economic dimensions (the cost of scrap and repeating work). This is a clear indication that performance criteria are not solely output oriented. Measurable psychological dimensions should also be taken into account. Thus performance criteria can be based on intra-individual and extra-individual variables.

Considering the possible steps for developing performance criteria Guion (1961:141) mentioned a five step procedure which is a very useful way for establishing criteria that are meaningful to the individual and the organisation. The five steps are the following:

- 1) Analysis of job and/or organisational needs.
- 2) Development of measures of actual behaviour relative to expected behaviour as identified in job and needs analysis. These measures should supplement objective measures of organisational outcomes such as turnover, absenteeism, production, et cetera.
- 3) Identification of criterion dimensions, underlying such measures by factor analysis, cluster analysis or pattern analysis.
- 4) Development of reliable measures, each with high construct validity, of the elements so identified.
- 5) Determination of the predictive validity of each independent variable (predictor) for *each one* of the criterion measures, taking them one at a time.

In step no 2. a distinction is made between behaviour data and results-of-behaviour-

data, or what can be referred to as organisational outcomes. Both these criterion measurements are very important and they both play a part in measurement of performance in this research.

4.1.4 Behaviour and outcome criteria

There is sufficient argument to support the notion that both behaviour and outcome criteria should be factored into the performance measurement of an individual. The opinions of various researchers on the topic will be reviewed below.

According to O'Brien, Dickinson and Rosow (1982:53), when defining work productivity measurements, the ones chosen should be those that will result in an economic pay off for the company; and the behaviours of an individual that indicate potential for growth and improvement for such an individual.

Cascio (1991:75) argues the case for using both output and behaviour criteria of performance assessment, provided both criteria are based on a comprehensive job analysis, describing the work to be done and the personal requirements for the job. He maintains that organisations are now placing more emphasis on behavioural measures of performance, because of some of the weaknesses experienced using solely objective measures. Many of these behaviours are based on the development of rating formats making use of well devised rating scales. In support of the use of behavioural measures, he points out that it is often difficult to relate the performance of a person's efforts directly to objective measures because there are usually factors beyond the person's control which affect performance data.

Kleiman and Durham (1981:103-121) suggest that objective measurement is the most defensible measurement as it is based on objective data such as number of production units produced over a given period. However, they maintain this system is not always the most commonly used in industries, such as human services industries where "the products are not as concrete and readily measurable as for instance in manufacturing

industry”, and where behavioural measures are more appropriate.

An example of an integrated performance appraisal system based on both objective and behavioural outcomes, is illustrated by Schweiger and Summers (1994:3-7). In their research, which involved employees in an audit department, use was made of a job analysis system to determine the skills, abilities and behaviour which enabled a distinction to be made between a good and poor performer. Based on this job analysis, performance standards relating to the job as a whole were developed, and communicated to each employee. Actual performance was then measured and compared to the standards using various rating scales – rating scales for hard data results and behaviour dimensions.

In support of the fact that behaviour measurements have a significant effect on actual performance, and ought to be used in performance measurement, Barrick and Mount (1993:111-118) conducted an experiment to determine the effect of 5 critical personality dimensions on job performance of 154 participants of a training programme presented by the US Army Management training department. The 5 factors were extraversion, agreeableness, conscientiousness, emotional stability and openness to experience. They found two of the dimensions, conscientiousness and extraversion, were significantly related to measures of job performance, thus supporting the usefulness of behaviour measures in performance measurement.

There have been a number of other very significant findings in the research relating to the importance of measuring both behaviour and output performance criteria. Hall (1983, in Landy, Zedeck & Cleveland, 1983:27) quotes Argyris (1970) who maintains that problems in organisations are caused by an over concentration on end-results. Argyris(1970) suggests that management should reward the means-to-the-end-results. He states that: “If we choose the correct means such as communicating, developing trust, encouraging free choice in decision making, and developing organisational consensus and internal commitment to action, we would have gone a long way toward achieving positive ends”. Argyris (1970) is referring here to implementing appropriate

behavioural measures. Hatvany and Pucik (1981:68) claim that many Japanese organisations make a strong case for rewarding behaviour rather than output. Staw (1983, in Landy, Zedeck & Cleveland, 1983:35) commenting on performance measurement says, "much of the difficulty in assessing individual performance comes from trying to measure outcomes instead of behaviours". He maintains that an in-house company lawyer's performance is judged not by how many cases he/she has won, because he/she is not in business to go out and win cases. Much of his/her time is taken up consulting in-house, and solving legal problems and giving legal advice. The lawyer's performance is judged rather on how he/she gives such advice.

O'Brien, Dickinson and Rosow (1982:51) also make the point that outcome measures, whilst very important, do not present the whole picture in performance management. They maintain that direct measures of output, while quantifiable, often reflect factors outside of the control of the employee. They give as an example the quality and quantity of output of an assembly line operator. His/her output depends on the speed of the assembly line belt and the quality of the parts coming to him/her on the line. The operator has little control over these. According to these authors the outcome measures are "at best incomplete and at worst misleading". However, one cannot do without them. These output measures need to be supplemented by other measures, not replaced by them. In this regard, they suggest that it is important to measure an individual's behaviours to determine which behaviours contribute to improved productivity. They suggest that if worker A produces 200 more widgets an hour than worker B, one needs to find out what behaviours differentiate the one from the other.

Day and Silverman (1989:25) conducted research with accountants in a medium sized accounting firm to determine to what extent personality variables are significant predictors of job performance. According to them, research has shown that cognitive abilities have demonstrated an overall superiority in predicting job performance (Hunter & Hunter, 1984:72), and they were concerned to see if personality factors also predicted performance. The assumptions that personality factors do play a role was prompted by research carried out by Cascio (1982). Cascio (1982) maintains that most

jobs are composed of task requirements and people requirements. Thus, in their research Day and Silverman (1989:25) made use of the personality research form - Form C (Jackson, 1974), to measure personality dimensions. Six dimensions were measured, namely, "impulse expression, orientation toward work, orientation toward direction from others, intellectual and aesthetic orientation, ascendancy and interpersonal orientation". A number of performance dimensions were developed against which to measure the relationship with personality variables, namely "potential for success, technical ability, timeliness of work, client relations, co-operation and work ethic". The results of the study indicated that there were significant correlations between the personality variables, "work orientation, ascendancy and interpersonal orientation" and at least three of the performance dimensions as well as a global measure of performance. The results further indicated that particular job-relevant aspects of personality are significantly related to ratings of job performance, and these are over and above what can be predicted by cognitive ability tests (Day & Silverman, 1989:34). This research once again highlights the importance of measuring aspects of behaviour (in this instance personality determinants of behaviour) apart from merely concentrating on output results as measures of performance.

In research, carried out by Day and Bedeian (1991:589), also amongst accountants, the results also indicated that there is a need to consider both personality and situation characteristics, in order to understand job performance. According to them, the role of personality in shaping work behaviour and performance has become a topic of great interest to psychologists working in organisations. They suggest that particular personality dimensions are related to the performance of certain occupations. From their particular research, Day and Bedeian (1991) found that there is an interplay between organisational climate and personality in determining work performance. Their measurement of personality variables was based on measures obtained from Gough's (1985:70) work orientation index, which is able to identify an individual, who is dependable, persevering, industrious, efficient and conscientious; or what they referred to as responsible and self-disciplined. Their hypothesis was that a high work oriented individual, in terms of the personality variables, should achieve better performance in

more proactive work climates than a low work oriented individual. Each subject was rated by his/her supervisor on job performance measures. The findings supported the hypothesis, and the researchers found that the high work oriented employee outperformed his/her low work oriented counterpart (Bedeian & Day, 1991:596). Their research has contributed to the growing literature which has been investigating the relationship between personality and job performance.

An understanding of the relationships between behavioural and outcome criteria for performance measurement is depicted in the figure 4.1.

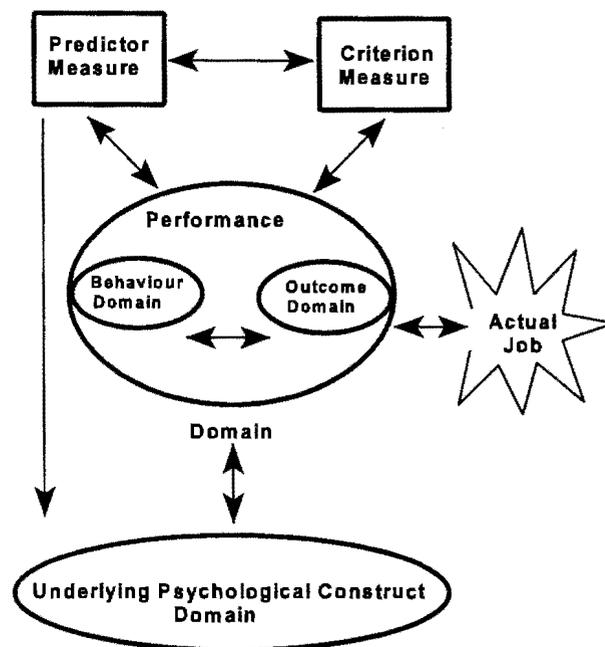


Figure 4.1: Criterion - performance model (Binning & Barrett, 1989:478)

The main features of the model are that both behaviour and outcomes are important measurements in the performance domain. Criteria are developed through rational evidence (usually through job analysis) and these include all behavioural dimensions, and job outcomes that have been identified and they are represented in the criterion measure. To ensure that a prediction measure will lead to performance, the predictor should be related to operational criteria measures and the operational criteria should be related to the performance domain it represents.

COMMENT

The reason for elaborating on the development of criterion measurements, and pointing out the importance of both behavioural and outcome based criteria, is that both have formed part of the reasoning surrounding the development of measures of performance in this research. When constructing performance measurements equal status should be given to both output and behavioural measures.

4.1.5 Multi or composite criteria

The debate as to whether the various criterion measures of performance should either be combined into a composite score or be treated separately is an important issue raised by Cascio (1991:68). As a general rule, behavioural criteria should be measured on a multiple criteria basis, whereas all of the criteria measuring economic variables (Rands and cents) should be combined into a composite measure. Thus underpinning the arguments for a composite criteria is the assumption that the criterion should represent an economic rather than a behavioural construct. Cascio (1991:69) suggests that the choice of whether one wishes to use multi or composite criteria should also be determined by the nature of the purpose for which they are to be used. If the balance of evidence suggests the criterion is part of an economic construct, then its elements can be combined into a composite representing the overall worth to the organisation. In this research, the composite measurement has been used, because the ratings are based on a combination of both behavioural and outcome criteria, leading to measurable economic results and a one factor solution has sound psychometric properties (refer 6.1.7.1).

4.2 PERFORMANCE CRITERIA IN THIS RESEARCH

The development of the performance criteria that are used by an individual in his/her appraisal of performance, are discussed in this section.

4.2.1 Background

Since organisations are complex systems, foremost in the mind of each manager is what performance criteria need to be measured. In other words, management needs to identify those areas that are critical to the accomplishments of the organisation (O'Brien, Dickinson & Rosow, 1982:51). As reflected in the previous section, the scope of measurement should reflect measures of output and behaviour which are linked to performance. The criteria used in this research for the measurement of performance are based on the needs of the organisation in the mining industry in South Africa. It will be noted that the criteria are, in fact, a combination of behaviours and outputs which were found to be suitable for this research. In a paper presented to the association of mine managers of South Africa the elements of a performance measurement system for mine employees at Vaal Reefs were outlined by Hodgson.

According to Hodgson (1991:291), assistant mine manager at Vaal Reefs, the performance criteria chosen focused on an employee's performance and development. The two critical components according to him were:

- the analysis and measurement of key individual behaviours
- the measurement of key output objectives.

The above is in line with the reasoning about the use of both types of criteria in performance measurement, presented in the previous section of this chapter.

According to Hodgson (1991:292) the behaviours and outputs considered necessary for appraising performance are:

Table 4.3: Behaviours and outputs for appraising performance

Designation	Behaviour/Output
Semiskilled workers	Timekeeping attitude Job Knowledge/standards/safety Team work/co-operation Wastage
Supervisors	Supervision Human relationships Standards Results/productivity Attitude
Miners	Supervision Human relationships Standards Results/productivity Attitude

The above indicates that an appraisal of performance which combines both behavioural and output criteria is an optimum way to conduct the appraisal process on South African mines.

4.2.2 Choice of criteria in this research

The basis for choosing the performance criteria in this research is linked to the requirements of a mining company which plays a significant role in the South African mining industry. The literature review will therefore discuss the choice of criteria based on accepted criteria of measurement in the mining industry. The performance criteria chosen for measurement are the following:

4.2.2.1 *Technical competencies*

This criterion evaluates the individual's job knowledge, skills to do the job and his/her

ability to carry out his/her function properly. According to Gist and Mitchell (1992:189) one's level of performance is a function of how capable one feels to carry out a task properly. In this regard, one's capabilities are based on acquired skills, knowledge, and abilities. The National Qualifications Framework of South Africa (1995) lays down certain standards for the development and attainment of competencies, and these should be used as a guidelines when assessing and developing skills, knowledge, and capabilities to perform a task. In this regard, the National Qualifications Framework of South Africa (1995) stipulates requirements by an organisation for the development of an individual's technical and social competencies. These relate to the education, training, career-pathing and the personal development of an employee in his/her present occupation, and occupations into which he/she can develop. The important aspect here, is that a person should be given every opportunity to develop his/her skills through appropriate training and career development opportunities. This is critical in the mining industry today and in the future. In terms of this, standards and qualifications of competency for various occupations will be forwarded to the National Qualifications Framework of South Africa by the Mines Qualification Authority for registration. It is these standards that will be applied in competency assessment (Babb, 1997:45).

Fenton (1995:24) suggests that organisations should promote a climate of dialogue in which each subordinate and his/her supervisor can discuss competency standards in an open and frank manner. This he says helps create a culture of learning. Whilst the National Qualifications Framework of South Africa (1995) establishes minimum standards for competency attainment, this, according to Fenton (1995:24) should not detract from the principle that the standards of expected competence and performance should be continually evolving. Having dialogue and discussion around competencies will ensure that existing standards of competence are being reviewed and updated.

4.2.2.2 Costs

Cost control is a very significant factor in mining operations and the mines are constantly trying to find ways to keep costs down. According to Solomon and Potgieter

(1990:329) rapidly rising production costs, and declining real term revenues resulting from a static, low gold price have necessitated reappraisal of management techniques in South African deep level gold mines. This applies to most other mining operations too, such as coal mining, where fluctuation in prices necessitate that costs are closely monitored. According to Solomon and Potgieter (1990:329), some of the ways that mine management can adopt to control costs is through material improvements, and more efficient use of resources, consumables and labour. The focus of their study at Loraine Gold Mines was a re-appraisal of mine management techniques to effect such improvements, and the development and implementation of a cost and production management information system at the mines. It is therefore important to measure the extent to which an individual is adopting suitable cost-control measures in his/her job.

4.2.2.3 *Organisation and control*

In mining, the organisation and control of labour, material and equipment is critical for the efficient functioning of the mines. Interesting research was conducted by Van den Munckhoff (1967:475) investigating the organisation and control of stopping operations at Leslie Gold mines. Issues which were evaluated were: 1) Drilling techniques and the most appropriate method to use for rewarding the drilling performances of a miner. 2) The research investigated the organising and controlling of materials, related to what Van den Munckhoff (1967) referred to as waste sorting and waste packaging. It was found that by adopting a particular system for using waste rock for hanging wall support, a higher packing density and cleaner waste packing resulted. 3) During this research other areas of organising and controlling material and labour were analysed. The traditional production control statistics such as tons trammed, holes per machine shift and allocation of explosives as a function of holes drilled were appraised. It is clear that this criterion measures the extent to which an individual can apply effective organisation and control methods in his/her work.

4.2.2.4 *Planning*

Planning is a function that is important in the everyday operation of the mines. Research conducted by Curtis (1955:265), in the planning of development operations at Hartebeesfontein mine, indicates that there are elements of planning which are very important in mining. Types of planning to consider are the following: layout of the mine, designing the organisation that would best suit mining conditions, planning for equipment and installation of equipment, planning methods of mining and labour to be used, planning the selection and training of staff and allocation of tasks and duties. When considering treble-shift development of a haulage, in order to obtain maximum footage, Curtis (1955) suggested that the following should be taken into consideration for planning purposes: types of machines to be used, size of loader, safety, ventilation and efficiencies.

Planning in all instances of mining is very important and this criterion evaluates the extent to which an individual is capable of planning important aspects of his/her work.

4.2.2.5 *Interpersonal skills*

Research conducted by McLelland and Winter (1969:75), indicates that there is a positive relationship between an "empathic" understanding of another person and outcomes achieved. The authors provided a number of propositions regarding how motives can develop and change. The one that is significant in this connection is the following: "Changes in motives are more likely to occur in an interpersonal atmosphere in which the individual feels warmly but honestly supported and respected by others as a person capable of guiding and directing his/her own behaviour". From a work point of view the suggestion, from this proposition, is that a person with good interpersonal skills can influence the behaviour of others significantly, resulting in the achievement of company goals. McLelland and Winter (1969:74) maintain that parents of boys who display a high 'n' achievement are warmer and more encouraging, (and fathers are less directive), than parents of boys with low 'n' achievement. From a theoretical point of

view, this suggests that warmth is a means of developing a close interpersonal relationship with another person, and this helps to reinforce positive thoughts and attitudes. Warmth and respect for another gives emotional support for the idea that each individual is capable of directing his/her own life, which reinforces a sense of internal locus of control (researcher's own view). This is an important criterion and measurement of this gives an appraisal of the extent to which the individual is able to positively influence the behaviour of another person.

4.2.2.6 *Production*

This criterion measures quality and quantity of work output. Where hard data criteria were developed, as a measurement of performance on the mines in this research, these not only served the purpose for reflecting the actual achievements of the mines themselves, but also provided a means by which an employee could judge his/her performance under this criterion. Perceptions under this criterion reflected how each individual judged his/her own performance in terms of quantity and quality. The criteria for measuring performance on the mines and which were developed by mine management themselves for this research, are:

- Production - Tons hauled
Advance/cut
Tons/blasted
Explosives Efficiency
- Safety - Number of fatalities
Reportables
Lost time injuries
Injury shifts lost
- Industrial relations - Disciplinary actions
Discharges

- Costs
 - Hauled rand/ton
 - Produced rand/ton

- Engineering
 - Machine availability
 - underground and surface

Each individual evaluates his/her production performance in relation to where he/she identifies him-/herself most in terms of performance. A production employee concentrates on production results, safety, costs and industrial relations in assessing his/her own performance. An engineering employee concentrates on safety, industrial relations, costs and engineering and also production if the individual considers that his/her performance influences production results.

In this instance, therefore, an individual's measurement of production is based on a value judgement that he/she places on his/her own contribution to each of the above areas of performance.

4.2.2.7 *Supervision*

The measurement in this criterion relates to a supervisor checking the work of a subordinate and giving the subordinate feedback on his/her performance. According to House (1981), a supportive supervisor provides an employee with precise feedback on his/her performance. According to him, the provision of feedback allows a person to assess his/her actual performance against the performance standards set and to adjust his/her level of effort accordingly (Bandura & Cervone, 1986:92). Checking of a subordinate's work also relates to directive aspects of work performance. It ensures that a subordinate carries out work in accordance with the rules and regulations of the organisation. This is referred to by Iverson and Roy (1994:15) as instrumental communication by the supervisor. In a sense, this helps to improve role clarity, because both supervisor and subordinate become very clear about what is to be done and what is expected in the job (Iverson & Roy, 1994:18). Feedback and job inspection are

closely related to each other in the supervision process. This criterion measures the extent to which an employee feels that he/she is able to supervise his/her subordinates effectively.

4.2.2.8 *Safety and other standards*

In the mining industry a knowledge and application of standards required to perform a function properly is very important particularly for the safety of each employee. Such standards are governed by the requirements of the job and relevant legislation. Standards governing the production process on a mine fall under the umbrella legislation of the Mine Health and Safety Act of South Africa(1996). This act stipulates the standards that need to be adhered to by the owner, each manager and each employee on the mine. Chapter 2.2 (1) of this Act states that the owner of every mine must ensure that the mines are constructed and equipped in such a manner so as to provide conditions of safe operation for each employee. In the same chapter of the Act, section 5 (1), the mine manager is required to maintain a healthy and safe mine environment for an employee. In this regard, a mine manager must supply all necessary health and safety facilities, and equipment to each employee and must ensure work is performed under the supervision of a person trained to understand the hazards associated with the work. Furthermore, the Act stipulates that a manager must prepare and implement a code of practice on any matter affecting the health and safety of each employee. On his/her part each employee should ensure that he/she receives appropriate information, instruction, training or supervision that is necessary to enable him/her to perform his/her work safely. Each employee is also required to become familiar with work-related hazards and the measures that must be taken to eliminate, minimise and control such hazards.

Thus, the Mine Health and Safety Act of South Africa (1996) lays down the minimum requirements and standards that the owner, the manager and each employee should ensure are in place to provide for a healthy and safe working environment.

4.2.2.9 *Work motivation*

This measures one's willingness to do extra work, and one's positive attitude to one's work. There is a link between work motivation and personal beliefs of efficacy. Locke, Frederick, Lee and Bobko (1984:241) indicate that self-efficacy has been shown to influence both goal level and goal commitment, and one's coping efforts whilst engaged with these tasks. Levels of self-efficacy will determine the effort that one is likely to put into goal attainment. According to Bandura (1982:122), the higher the level of self-efficacy, the higher will be the level of performance accomplishments through the effort that one is prepared to put into task accomplishment. Research, conducted by Erwee and Pottas (1982:95), indicates that there is a strong correlation between internal locus of control and McLelland's (1969) 'n' achievement. The ability to commit oneself wholeheartedly to one's work is a function of the amount of internal locus of control that a person possesses (researcher's opinion). In terms of this research it is thought that a measurement of work motivation will be a useful predictor of one's level of self-efficacy and internal locus of control. This criterion measures the extent to which an employee has a willingness to put effort into task accomplishment and in terms of this research, it is a reflection his/her level of self-efficacy and internal locus of control.

COMMENT

In overall terms, the criteria selected for measurement of performance are based on the needs of the organisation within the context of mining.

4.3 THE SELF-APPRAISAL PROCESS

Self-appraisal of performance is an important aspect of this research, because it is a reflection of the person's belief of his/her capabilities to perform a task. It is closely related to Bandura's self-efficacy theory (Wood & Bandura, 1989:408). This states that self-efficacy refers to the belief that one has in one's capabilities to mobilise the motivation, cognitive resources and courses of action needed to meet given situational

demands. These beliefs that a person has about his/her capabilities are reflected in the assessment that each person makes of his/her behavioural and outcome performance criteria. Self-appraisal of performance is related to self-efficacy theory and through it to salutogenesis.

The next section will critically evaluate the literature regarding the use of the self-appraisal process.

4.3.1 Usage of the self-appraisal system

A number of theoreticians have mentioned that self-appraisals are being used as measurements of performance. These are indicated below.

Cascio (1991:80) makes reference to the fact that self-appraisals are increasingly being used. He found self-ratings, by a subordinate, have been found to correlate well with performance, particularly where the ratings have been aggregated so that no individual's rating can be singled out.

Porter and Lawler (1968) identified three major performance appraisal systems, one of which they refer to as the subjective-self-rating system.

Kleiman and Durham (1981:103-121) and Nhundu (1992:31) maintain that whilst in most instances in industry, ratings appear to be done on a subjective-supervisor rating basis, using measurable concrete results where possible, the trend is changing, so that self-appraisals are also increasingly being used in the process of performance evaluation.

Lane and Herriot (1990:77-88) conducted research, amongst 47 unit managers of a large leisure organisation, to compare the effects of supervisor and self-ratings on subsequent performance in the form of unit admissions and gross profit. Whilst the use of supervisor ratings continues to be widespread for the purposes of appraisal, they

maintain that the full potential of self-assessment has still to be realised. According to them, self-ratings represent judgements of self-efficacy which are strongly motivational in character.

O'Brien, Dickinson and Rosow (1982:54) make the point that the supervisor and the employee are the individuals with the best access to job information for performance rating. Whilst these authors tend to prefer the supervisor rating of an employee's performance, they certainly do not rule out self-rating as an effective method. They suggest that, for self-ratings to be effective, the supervisor should reward the subordinate for an honest and accurate assessment of performance data.

Fahr, James, Werbel and Bedeian (1988:144) reported that the self-appraisal-based-performance evaluation system, which they introduced into a university faculty, was effective. Fox, Caspy and Reisner (1994:45) reported the use of self-appraisals for the use of promotion assessment among police officers. Campbell and Lee (1988:302) recorded the usefulness of the self-appraisal system, as a method to help an employee improve his/her job performance.

Fletcher (1986:3) suggests that appraisal, based on an individual's own assessment of his/her performance, can overcome many of the problems traditionally associated with performance feedback in the appraisal interview. He suggests it is a more robust approach and one that has ample evidence of effectiveness. Research conducted by Solano (1978) and Williams and Rose (1978) showed that self-rating is becoming increasingly important for psychological research and theory.

The research indicates that self-ratings of performance are being widely used in organisations.

4.3.2 The link between self-appraisals and self-efficacy

This section will discuss research linking self-appraisals with self-efficacy theory.

Wood and Bandura (1989:366) suggest that self-evaluation of one's behaviour against personal standards motivates a person to take action to improve on sub-standard performance. This indicates a connection between self-appraisal of performance and self-efficacy theory.

Showing that there is definite merit in the use of self-ratings, Lane and Herriot (1990:79) point out that there is a link between how one observes one's behaviour and the consequences. According to these authors a person evaluates his/her performance against how he/she views his/her own personal standards, norms and social comparisons. This is in line with Bandura's (1989:1175) self-efficacy theory whereby the self-concept that one has, plays a pivotal role in how one views one's ability to carry out a task successfully. In relation to this, Lane and Herriot (1990:79) state: "If we apply this theoretical approach to self-rating of work performance, we may construe self-ratings as measures of self-efficacy. That is they may be seen as estimates of one's ability to perform in the job based on the consequences of previous performance". Given the dynamic and reciprocal interaction between an employee and his/her work environment, it can be expected that high self-efficacy to be a consequence of a positive evaluation by oneself in the organisation, and also a predictor of future performance (Lane & Herriot, 1990). The most important findings from the research, carried out by Lane and Herriot (1990), actually lie in the foundations for a theory of self-assessment based on self-efficacy. In relation to this research, Lane and Herriot (1990:87) found that self-rated skills actually predicted performance over six months, showing that the self-ratings represent judgements of self-efficacy, which are strongly motivational in character.

Further research in this regard, conducted by Levine (1980:259-262), supports the notion that Bandura's work on self-efficacy has contributed to an understanding regarding the usefulness of self-appraisals in performance assessments. According to him two papers by Levine, Flory and Ash (1977:428) and Meyer (1977:508) have advanced the notion that self-assessment of skills, abilities and knowledge and self-appraisal of job performance could yield valuable information about the individual. He

maintains that through Bandura the idea of self-concepts and self-reports have assumed a centrally important role in psychological research and theory (Levine, 1980:262). He refers to a paper by Bandura (1978:344) entitled "The Self System in Reciprocal Determinism" and says, "In that paper Bandura has potentially done those of us who are working with self-appraisals and self-assessments in the applied setting, a substantial service, because he has formulated a theory in which the self is placed on a par, in terms of predicting and understanding human behaviour, with the environmental influences and actual behaviour itself. His theory provides a basis for explaining why self-assessment and self-appraisal might work in the applied setting".

Levine (1980:261) reports further on Bandura (1978:344) as follows: "Perhaps the key explanation offered by Bandura is that each of us has the opportunity to become quite knowledgeable about our attributes under a variety of conditions. He posits at least three processes by which we develop and verify conceptions about ourselves. First, of course, we directly experience the effects produced by our actions in a variety of real-life and test settings. Secondly, we gain information about the nature of things from vicarious experience, that is by observing others. We have also been on the receiving end of numerous judgements about us and our performance voiced by others. Finally, we all have a good deal of time to verify, logically and rationally, our feelings about ourselves and our performance, because we have lived with ourselves ever since we can remember". It is thus interesting to note, from Levine's (1980) research, that self-reporting, based on Bandura's (1979) social cognitive theory, has a definite role to play in self-appraisals and self-monitoring systems of performance, abilities, skills, knowledge and other personal characteristics.

In terms of cognitive mediation theory, Garland (1988:383) maintains that there is a strong relationship between the assessment an individual makes on feedback to him/her on previous task performance, goals he/she are likely to set in the future and the level of self-efficacy. This suggests that the cognitive self-appraisal one makes of one's past performance and performance capabilities has an impact on self-efficacy. It appears from this that a link between an individual's self-appraisal, his/her

performance and self-efficacy is established.

4.3.3 The effectiveness of self-appraisals

In this section the effectiveness of the self-appraisal will be reviewed in respect to its predictive value, leniency and creating a constructive relationship with the supervisor. If self-appraisals are to be used, then it is important to understand the strengths and weaknesses encountered by the self-appraisal process.

4.3.3.1 The predictive value of self-appraisals

Fahr, James, Werbel and Bedeian (1988:141) conducted research amongst faculty members of a large university, to determine the effectiveness of a self-appraisal-based-performance system. They observed encouraging results in support of self-appraisals. Their work was based on research conducted by Shrauger and Osberg (1981:322), who compared the validity of individual self-appraisals with other procedures commonly used in psychological evaluation (psychological tests, past performance, peer ratings). They found that self-appraisals are at least as predictive, as other assessment methods, indicating that they are potentially valuable sources for performance evaluation purposes. The basis of their research revealed the following: each faculty member was asked to evaluate him-/herself in the following areas: 1) Instructional methods, which included teaching methods and curriculum development. 2) Instructional support to the students, which included advice and participation in student organisations. 3) Journal publications. 4) Presentations at professional meetings and 5) Service each offered to the university, his/her department and to the professors. A five point rating scale was used to measure each area (1 - poor; 5 - outstanding). Parallel to this process, each chairperson in the faculty then rated each faculty member in his/her department, using the identical rating form, and then returned these ratings to each ratee, who could then discuss any disagreements with the chairperson. The main findings from their study (Fahr et al, 1988:153) were that on the self-appraisal-based-performance evaluation (SABPE) process, the self-ratings were highly congruent with the supervisor

(Chairperson's) ratings. The self-ratings were found to be just as dispersed, and no more lenient than the supervisors ratings on the performance dimensions. One of the keys to the success of the self-appraisal process was that the performance dimensions focused on specific outcomes or activities, where each self-rater could expect that his/her ratings would be validated against actual criterion measures. The SABPE was found to be an acceptable alternative to the traditional supervisor-prepared performance evaluations. One interesting observation, made by the researchers, is that the SABPE system is more likely to be effective where the organisation practices democratic, or participative styles, of management.

Research conducted by Bassett and Meyer (1968:421), found that a self-rating appraisal system, at the General Electric Company, was well accepted by each employee and his/her supervisor; and the self-appraisals were judged to be more constructive than the traditional supervisor-prepared performance interviews.

Important observations regarding the potential advantages of incorporating self-appraisals into the traditional performance appraisal process are based on research by Fletcher (1986:3). He maintains that,

- self-appraisal-based-performance evaluation increases communication between raters and ratees regarding job content, performance criteria, and mutual expectations;
- self-appraisals increase ratee participation and give raters a greater sense of control over performance evaluation, which leads to greater satisfaction and acceptance of the appraisal results;
- self-appraisals have less halo error than supervisory ratings, and are thus more discriminating across performance dimensions;
- since ratees and raters occupy different roles, a multiple-assessment-appraisal generates a larger data base upon which to make performance evaluation decisions.

4.3.3.2 *Self-appraisals and the leniency factor*

A criticism levied at self-appraisals has been the ratee's leniency of his/her rating. However, research conducted on self-appraisals has suggested effective ways to counter this problem.

Lane and Herriot (1990:77-88) refer specifically to the leniency error. Cascio (1991:80) maintains that compared to appraisals, carried out by supervisors, self-appraisals do tend to show more leniency on the part of the rater. Meyer (1990:291) suggests that the leniency error occurs mainly when an individual is asked to compare him-/herself with others. However, when the comparison of standards is explicitly between the self-rater's own relative strengths and weaknesses on various criteria, Meyer (1990) found that there is little leniency effect. This suggests that leniency can be controlled.

In research, analysing the effectiveness of self-ratings, Fox, Caspy and Reisler (1994:45-56) identified factors which could lead to the reduction of leniency and halo effects of self-ratings. Their research was based on the premise that leniency and the halo effect are considered common inadequacies. They found that the self-appraisal process is especially prone to a leniency bias when it is associated with self-enhancement. Their research investigated conditions that promote self-enhancement or leniency motives and techniques that can counter this. Their subjects were drawn from 275 policemen and women, who had attended an assessment centre for promotion to command-positions. The assessments of each person's skills were made by trained observers, at the assessment centre, and in addition each candidate was asked to do a self-rating of his/her own abilities. There were two interesting observations from this research. In the first instance, the use of unbalanced rating scales by each ratee had the effect of reducing the halo/leniency effect (in the unbalanced scales the following ratings applied: (1 = less than others; 2 = like others; 3 = more than others; 4 = significantly more than others; 5 = more than all others). The other observation was that the use of non-relevant items, as opposed to relevant items, reduced the halo/leniency effect. The reason that job relevant items (effective decisions,

self-confidence and human relations) were found to have increased halo/leniency, as opposed to non-relevant items (mechanical ability, manual dexterity and foreign language propensity) in the research, is that each person was seeking promotion; and he/she wished to make an impression on his/her superior, particularly with regard to the job relevant issues. The observation that one can make is, that whilst the researchers were not against the use of self-appraisals, they suggested that when considering the use of such systems, the nature of the situation (in this case assessing for promotion) and the use of properly designed rating scales need to be taken into account, when employing a self-appraisal process.

Fletcher (1986:8) maintains that whilst the leniency factor can be a problem it is invariably countered by the individual's inherent modesty about him-/herself, in the self-appraisal process. He found that invariably when an individual is asked to prepare a self-appraisal for performance interviews he/she tends to be modest in his/her ratings. In this regard Fletcher (1986:8) states: "modesty is a valued attribute, whereas blowing one's own trumpet is frowned upon". However, Fletcher (1986:8) admits that the type of ratings makes a difference. When the individual's self-assessment is anchored on behavioural observations (rather than general ratings of performance), there is much greater objectivity. This is supported by Downs, Fahr and Colbeck (1978: 271-278). Fletcher (1986:8) also points out that the context of the appraisal plays a part in creating leniency. If pay is linked to ratings, then this will tend to increase leniency effects. However, Fletcher (1986:8) reports on one type of self-appraisal that holds great promise in counteracting leniency. This occurs when an individual is asked to assess different aspects of his/her work performance **relative to one another**, rather than to measure performance against that of his/her peers. In this regard, it has been found that the subordinate's judgements are more discriminating (less halo effect) than that of his/her supervisor and in this way self-appraisals can be very effective. In this instance, appraisals are regarded as part of a development process, aimed at remedying weaknesses and capitalising on strengths. The role which the subordinate plays in identifying these development areas increases his/her willingness to take the necessary action steps thereby reducing the tendency towards leniency ratings.

4.3.3.3 *Creating a constructive relationship with the supervisor*

The self-appraisal process enhances the understanding between the subordinate and his/her supervisor. It also encourages the self-development of the individual.

a) Enhances understanding

Self-appraisal enhances the understanding between the supervisor and the subordinate, through constructive dialogue and through an appreciation of how attribution theory can explain a subordinate's ratings.

- **Constructive dialogue**

Campbell and Lee (1988:302-314) suggest that self-appraisals can be used to complement the evaluative ratings made by a supervisor, and they can be used to help an employee improve his/her job performance. The process of complementing the ratings of a supervisor is useful when there are areas of disagreement between the supervisor's rating of the individual and the individual's own rating of his/her performance. A supervisor's rating bias can occur when the supervisor hasn't explicitly agreed with the individual what tasks are to be done, on how the tasks are to be performed and on the standards for judging the final outcomes. Campbell and Lee (1988:304) refer to this as a problem of role ambiguity. It is important for the ratee to know which criteria will be used to evaluate his/her performance. Other problems occur where the supervisor is too quick to categorise the employee into a particular category of behaviour rather than reflect on specific behaviour(s) that lead to specific performances. From the supervisor's point of view, problems can arise where the individual ratee makes use of certain defence mechanisms to protect his/her self-image. These, whether or not they originate from the rater or the ratee, can produce distorted views of reality in the assessment of performance. The interactive process, based on discussion of the supervisor's and the individual's respective ratings, can lead to specific corrective actions, agreed to by both parties to address the problems.

Interventions such as role clarification exercises, improved job descriptions, thorough performance review sessions and behaviourally anchored rating-procedures can be agreed by both parties and put in place. In such instances, self-appraisals are used to enhance the appraisal process.

Fletcher (1986:3-12) also argues that the relationship between the supervisor and the subordinate breaks down, because the supervisor fails to strike an appropriate balance between the individual's strengths and weaknesses, when giving feedback on performance. In fact, he suggests that the supervisor tends to concentrate too much on the weaknesses. Other issues, determining the efficacy of the supervisor's feedback on performance are the use by him/her of clear and relevant data, the extent to which participation of the subordinate is encouraged, and above all, the relationship that exists between the supervisor and subordinate. Thus, according to Fletcher (1986), there are many issues which can affect the outcome of feedback on performance by the supervisor to the subordinate. Fletcher's (1986) argument in this regard, is that the subordinate knows how best he/she performs and this notion supports the argument for the use of self-appraisals. He maintains it is impossible to avoid self-appraisals because a person will always have views on how well he/she is performing and any assessment and feedback given to him/her by his/her supervisor will be received against this background (Fletcher, 1986: 8). To minimise conflict, the supervisor needs to understand that feedback to a subordinate should be based on well established performance criteria. In this regard, self-appraisals pass the initiative to the appraisee, and, as a result, a much higher degree of appraisee motivation is engendered in the feedback process, since the appraisee has the best knowledge of what he/she has actually achieved. The point that Fletcher (1986) makes is that self-appraisals are unavoidable. He suggests that sooner the supervisor acknowledges this fact, and accepts self-appraisal as part of the appraisal process, the sooner the relationship between the parties will improve through dialogue and understanding of each other's point of view.

- **Attribution theory**

According to Baron and Byrne (1991:55) **attribution** relates to understanding the causes of behaviour. Attributes are the underlying dispositions of the individual, which regulate his/her behaviour. With regard to self-appraisals, the theory relates to understanding the underlying attributes that influence how a person rates his/her performance. It can provide the supervisor with useful information about his/her subordinate; and, in so doing, it can enhance the relationship between the parties. This section will review literature on the issue.

Fahr and Dobbins (1989:835) examined leniency in self-appraisals as a factor of self-esteem, based on the internal and external locus of control attribute of a person. They found positive correlations between self-esteem and self-appraisal leniency. Levy (1993:51) also found that there is a positive relationship between the attributes of internal and external locus of control and self-appraisal ratings. The higher the internal locus of control of the individual, the higher the individual perceives his/her performance compared to another person. An externally controlled individual, who believes the causes of events lie outside his/her control, is more inclined to blame his/her failure on his/her supervisor or some other outside factor. An individual views behaviour as a success if he/she feels it is under his/her own control and as failure if it is outside his/her control. An individual who sees events as within his/her own control believes that he/she deserves more credit, and reward when things go well at work. If this is not recognised, conflict with his/her manager may result. In order to avoid any possible conflict between supervisor and self-rater regarding the rating of performance, and in order to ensure that the internally controlled person is not merely giving an inflated view of his/her performance, Levy (1993) suggests that the manager and subordinate should agree on clearly defined performance criteria and agree that the individual's self-appraisal will be validated against these. The research found the opposite effect with the person who is externally controlled. He/she will tend to blame the external environment for poor performance; or he/she will not listen to any negative feedback from the supervisor. This too can lead to conflict. The manager needs to understand the

reasons for such behaviour. According to Levy (1993), resorting to top-down appraisals only, will not solve the problems of discrepancy between self-rater and supervisor whether or not discrepancies are caused by over favourable ratings (internals) or blaming the supervisor for failure (externals). And this, because the self-rater will still do his/her own rating in an informal way, which means the perceived discrepancy will still remain.

The views of Baron and Byrne (1991), Fahr and Dobbins (1989) and Levy (1993) are that a supervisor who understands the reasons for the behaviour by an individual will go a long way to helping avoid conflict between supervisor and subordinate on issues surrounding the self-appraisal of performance. An important lesson to be learned is that it is not possible to avoid some form of self-appraisal, be it formal or informal (this is the view of the present researcher).

The conclusion that can be drawn from the above, is that the behaviour of an individual as reflected in his/her self-appraisal can be explained through attribution theory. An understanding of this by the supervisor and the subordinate will assist in developing a constructive relationship in the self-appraisal process between both individuals and it will lead to constructive dialogue in the performance process.

b) Encourages self-development

Levy (1993:51-62), in research he conducted with students and referring to the work of Meyer (1991:68), advocates that whenever an appraisal discussion is designed to facilitate communication, motivation and personal development, it should make use of the subordinate's self-appraisal.

Campbell and Lee (1988) suggest that self-appraisals can be used effectively, beyond their use in evaluative measurements. They can be used for improving future performance through the personal development of the individual. By reflecting on his/her strengths and weaknesses, an employee is encouraged to concentrate on how

to improve performance (Wexley & Klimoski, 1984). In support of this, Ward (1995:20-22) maintains that the purpose of the self-appraisal system is for use by the person, mainly as a developmental technique. It concentrates primarily on behaviours, skills and competencies and it is aimed at the identification of strengths and development needs for performance improvement.

There are two theories which govern the influence of self-appraisals on future performance and personal development. The one is control theory (Campbell & Lee, 1988: 309), whereby the individual perceives a discrepancy between his/her current and the desired situation. This discrepancy triggers self-directed behaviour, aimed at reducing the discrepancy. The individual will attempt to decrease the gap by improving job performance and enhancing personal development. The other is self-efficacy theory (Bandura, 1982:122). One's judgement about one's ability to execute courses of action is a critical factor in determining one's motivation and performance. The greater the belief a person has of his/her capabilities, the more likely he/she will achieve challenging goals. Appraisal of one's skills and abilities is a useful precursor to motivate a person toward future performance and personal development. If one senses a need, one can enhance one's skills and competencies through observing the successful behaviour of others. One can also increase one's efficacy beliefs through positive feedback and persuasion from one's supervisor. A further advantage of self-appraisal is that it can be used proactively to help obtain the supervisor's co-operation and develop the supervisor's positive relationship to assist, in the enhancement of the subordinate's self-efficacy beliefs and skills (Campbell & Lee, 1988:303). It is important, however, that a positive and constructive relationship has been developed between subordinate and the supervisor for self-development to take place.

4.3.3.4 Self-appraisals in perspective

From the above, it can be seen that self-appraisals do have a role to play in performance assessment. Fletcher (1986:9) in this regard reported on research carried out at Gulf Oil Group by Stinson and Stokes (1980:43). In this the supervisor,

subordinates and the peers of the appraisee, along with the appraisee him-/herself, were all involved in a successful performance appraisal process. The self-appraisal process can be used successfully with the other performance appraisals. Finally, in this regard Fletcher (1986:10) summarises his views: "appraisals based on the individual's own assessment of his/her performance can overcome many of the problems traditionally associated with performance feedback in the appraisal interview. It is a more flexible and robust approach and one that has ample evidence of effectiveness". Research indicates that self-appraisals make a significant contribution to the performance process provided that there is a clear understanding of some of the problems that are associated with this technique. In the researcher's opinion, the value that an individual will derive from a constructive use of the self-appraisal process, is the enhancement in his/her level of self-efficacy.

The self-appraisal system has been used successfully in this research especially with regard to its role in salutogenic thinking. In this context, it is a cognitive mediator between feedback to an individual about his/her performance, and the assessment an individual makes of his/her capabilities to perform and of his/her level of self-efficacy.

4.4 THE WORK PERFORMANCE PROFILE

This section will describe the properties of the work performance profile and the personality profile of the optimum performing individual.

4.4.1 The properties of the work performance profile

In terms of this research, the work performance of an individual is related to the level of his/her self-efficacy (Bandura, 1997:22). Barling and Beattie (1983:41) showed that there is a positive correlation between the level of self-efficacy and the sales performance of an insurance salesman. Locke, Frederick, Lee and Bobko (1984:241) reported significant correlations between an individual's self-efficacy and task performance. Again Coladarci (1992:323) showed that students in efficacious schools

set high standards and achieved good results and the behaviours they produced were conducive to intellectual development. The two important factors relating to performance, in this research, are the development of suitable criteria for performance measurement and the use of self-appraisal to assess one's performance and which is regarded as a measure of self-efficacy beliefs.

- **Performance criteria**

In order to measure performance it is necessary to establish suitable measurement criteria (Cascio, 1991:50; Spangenberg, 1994:1-6). Research has shown that this has been successfully accomplished (Cascio, 1991:51; Loubser & de Jager, 1995:1-6). A technique which Cascio (1991:267) suggests should be used in criteria development is to conduct a comprehensive job analysis on the position. This helps to establish the criteria clearly.

There are two types of criterion measurements namely, outcome and behavioural. According to Cascio (1991) the majority of organisations make use of production results only (outcomes). However, there has been significant research that suggests that performance measures should be both outcome and behavioural based (Barrick & Mount, 1993:111). Cascio's (1991:70) performance criterion model supports the notion that both behaviour and outcomes are important measurements of performance. Argyris (1970) also suggested that too much emphasis is placed on end results whereas reward should also be given to the "means" of achieving those results. Day and Bedeian, (1991:589) in this regard maintain that there is a strong correlation between personality variables and results. Thus performance measurement should include both behavioural and outcome criteria in the ratings.

The criteria should be relevant to the job and the organisation. In this research criteria are developed by the mine and which are congruent with performance measurement criteria in the mining industry in South Africa. These criteria are technical competence, costs, organisation and control, planning, interpersonal relationships, supervision,

safety and standards, work motivation, and production.

- **Self-appraisals**

Self-appraisals have been used in this research because of the link between self-appraisal of performance and self-efficacy. In this regard Lane and Herriot (1990:79) maintain that a person evaluates his/her performance in relation to how he/she views his/her behaviour in terms of his/her personal standards, norms and social comparisons and concluded that self-ratings represent judgements of self-efficacy which are strongly motivational in character. This is in line with self-efficacy theory whereby one's self-concept plays an important role in how one views one's ability to carry out a task successfully (Bandura, 1986). Further to this, Levine (1980:259) supports the notion that Bandura's work on self-efficacy has contributed to an understanding of the usefulness of self-appraisals in performance assessments.

As shown above, a number of theoreticians have mentioned that self-appraisals are being used as measurements of performance supporting the notion that self-appraisals are an accurate assessment of a person's performance. Cascio (1991:80) makes reference to the fact that self-appraisals are increasingly being used, and that self-ratings by subordinates have been found to correlate well with performance.

A number of useful aspects of self-appraisal have been noted by researchers which have relevance to the performance of an individual. Fletcher (1986:3-12) reported improved communication between the rater and the ratee and increased participation and control over performance evaluation by the ratee. Campbell and Lee(1988:304) reported on a better understanding of issues surrounding the job through constructive dialogue between the rater and ratee. Through effective dialogue the rater and ratee can clarify roles, goals and performance measurement criteria. Self-appraisal of performance enables an individual to concentrate on his/her strengths and weaknesses and develop a performance improvement plan (Wexley & Klimoski, 1984). Campbell and Lee (1988:309) maintain that self-appraisal enables a person to establish a

discrepancy between his/her current situation and a desired situation which triggers self-directed behaviour to reduce the discrepancy, by taking appropriate self-development action. Self-appraisal acts as the cognitive mediator between performance and an individual's self-efficacy and provides an individual with an assessment of how he/she is likely to perform in the future.

4.4.2 The personality profile of the optimal performing individual

In this section, an attempt will be made to construct a personality profile of the optimal performing individual. In order to be consistent with the other chapters (compare 2.4.2 and 3.5.2) the same classification of the personality characteristics will be used namely the intra- and interpersonality characteristics as classified by Cilliers (1988:16). This classification will be used to describe the personality profile of the optimal performing individual taking into account the theoretical properties of the work performance profile.

Intrapersonal characteristics

The theoretical concepts of performance criteria and self-appraisal, as enunciated by the various theoreticians in this chapter (refer 4.4.1), will be integrated into the personality profile.

- **Cognitive characteristics**

At cognitive level he/she has a clear understanding of the performance criteria that will be used to measure his/her performance. The establishment of these criteria were well described by Cascio (1991:51), Spangenberg (1994:1-6), Loubser and de Jager (1995:2). The person identifies with the goals of the organisation. The person assesses his/her capabilities accurately which enable him/her to perform at an optimum level. He/she makes this judgement at a cognitive level.

- **Affective characteristics**

Mention has been made of the importance of using behavioural criteria in measuring work performance (Day & Bedeian 1991:589). Loubser and de Jager (1995:2) make reference to a number of theoreticians, who specifically state the importance of these criteria. In this regard the individual feels very satisfied with his/her performance, and this builds self-image. Self-appraisal enables the person to gain a sense of control over his/her work (Fletcher, 1986), which gives the person the feeling of ownership, and this is an important affective characteristic. The person identifies with the goals of the organisation and he/she has a strong ego-identity. The dialogue created between the rater and the ratee (Campbell & Lee, 1988:304), in the self-appraisal feedback session, gives the ratee an appreciation of the events surrounding his/her performance, and instils a feeling of belonging. The person has a well developed self-confidence and a positive self-esteem.

- **Conative characteristics**

The optimal performing individual has a good understanding of the relationship between his/her effort and output. He/she understands that to perform optimally he/she needs to concentrate in upgrading his/her skills and capabilities. The individual possesses a drive and ambition to continually achieve more challenging goals. The individual is empowered. His/her energy comes from within.

b) Interpersonal characteristics

Interpersonal behavioural performance criteria are regarded as being important by a number of theoreticians. For instance Katz (1974:90) mentions interpersonal and human skills; Schroder (1989) mentions management of interaction, impact and interpersonal search; and Cunningham (1985:66) mentions concern for sound relations, positive esteem, and development of others as being significant behavioural criteria. The optimal performing individual has a strong identity with the team, and develops

good and mature relationships with others.

The individual has well developed social contacts with his/her subordinates and other team members. The self-appraisal process has fostered a sound relationship and communication with his/her supervisor and this inspires the individual to continually strive to improve his/her skills and achieve challenging goals.

COMMENT

The optimal performing individual has cognitive understanding of exactly how his /her performance is measured; and is able to make a reasoned judgement of his/her capabilities to achieve in these areas. The individual uses his/her behavioural qualities to develop a positive identity with the criteria of performance and this creates a sense of belonging and self-confidence which enhances the person's self-image. The individual performs optimally and is motivated to achieve results, and to develop action plans to continually improve performance. He/she has a positive relationship with his/her supervisor, colleagues and subordinates.

Herewith the third literature aim has been achieved, namely the development of the work performance profile together with the personality profile of the optimal performing individual.

4.5 CHAPTER SUMMARY

In this chapter reference was made to the importance of criteria based performance assessments, some of the difficulties experienced in determining suitable criteria and techniques used for establishing criteria based on sound theory and the research of others. Mention was also made of the importance of using both behaviour and outcome criteria in performance assessment.

The chapter also discussed the development of the criteria that were used for

performance measurement in this research. These were based on the needs of the organisation and measurement criteria in the mining industry.

Research was also presented indicating that self-appraisal is a useful method for measuring performance and that there is a relationship between self-appraisal of performance and self-efficacy. Self-appraisal and salutogenic thinking are thus connected.

The chapter concluded with the work performance profile and the personality profile of the optimal performing individual.

INTEGRATION

THE INTEGRATION OF THE TEAM BUILDING, THE SALUTOGENIC AND THE WORK PERFORMANCE PROFILES INTO THE PERFORMANCE MODEL OF THIS RESEARCH, AND THE PERSONALITY PROFILE OF THE OPTIMAL FUNCTIONING INDIVIDUAL.

In this section the profiles of team building, salutogenesis and work performance will be integrated into a performance model. It also appears certain that the personality profile of the optimal functioning individual, within the context of this model, can be established. The purpose of this section is to achieve this integration on a theoretical level. This addresses the research question as to whether it is possible to integrate the three into a performance model.

The achievement of the aims will serve as a theoretical contribution to the discipline of industrial psychology, namely the development of a performance model, and the personality profile of the optimal functioning individual in the context of the performance model.

Brief mention will be made of the principle properties of each profile as outlined in 2.4.1, 3.5.1 and 4.4.1. Thereafter the personality characteristics of each will be presented, which underpin the profiles leading to the integration of all into the performance model and the personality profile.

a) The principle properties in each profile

The properties provide the basis for the formation of the performance model.

Team building profile

The key dimensions in team building are the directive and the interactive properties. In

this research, the directives have been classified as role clarity, job standards, organisational structure, supervisor effectiveness and job satisfaction. The interactives have been classified as conflict handling, communication, team building, rewards, contribution to profits, team work, sharing of information, co-operation between teams, feedback and recognition. There are properties that are a combination of both directives and interactives. These are decision making, responsibility, job tension and propensity to leave. Supervisory support is a separate dimension, with its properties of information support, instrumental support, appraisal support and emotional support. This dimension is classified as directive and interactive within team building. A clear characteristic of the team building profile is the influence of the work environment on the behaviour and performance of the individual.

The salutogenic profile

In this research, the salutogenic concepts are based on the theories of Antonovsky, Rotter and Bandura. According to Antonovsky the sense of coherence develops in response to the environment. The generalised resistance resources that help to shape the sense of coherence are the physiological, behavioural, psychological, cultural and social ones, profound ties to immediate others and commitment of institutional ties. The sense of coherence which develops in response to the generalised resistance resources is measured by comprehensibility (understanding the stimuli in the environment as orderly, predictable and generally making sense), manageability (having the resources both internal to oneself and external to be able to cope with stimuli in the environment) and meaningfulness (being prepared to commit oneself emotionally to the demands of the environment). According to Rotter, locus of control focuses on an individual's behaviour, which is based on the generalised expectancy of outcomes of reinforcements resulting from the use of one's own skills (internal) to solve problems, or from an outside controlling force (external). The determinants of the behaviour are both from the environment and from the use by the individual of his/her skills and capabilities. According to Bandura, self-efficacy is the belief in one's skills, competencies and capabilities to carry out a task successfully based on the interaction

between the individual and his/her environment. It is also based on challenging goals and the achievement of results. The environment plays an important role in determining one's strengths in each of the concepts.

The work performance profile

The principle properties of the work performance profile consist of both well-established behavioural criteria and those of outcome performance. In this research, these criteria are technical, costs, organisation and control, planning, interpersonal skills, production, supervision, safety and work motivation. Furthermore, self-appraisal of performance is significant because of its cognitive mediating function between performance and self-efficacy and salutogenic thinking.

Integrating the profiles into the performance model of this research

The properties of the above three profiles constitute the performance model used in this research. It appears that a theoretical relationship exists between these profiles.

The salutogenic concepts are a central feature of the performance model. These relate to the well-being, coping, learning and achieving capabilities of an individual. These are influenced by the directive and interactive dimensions in the team building profile which either enhance their strength if present, or cause them to diminish in strength, if absent. There are properties in the team building profile, which act as generalised resistance resources for strengthening the sense of coherence. These are either directive or interactive generalised resistance resources. These same properties help to create the conducive environment, for self-efficacy to develop, and are the properties in which the reinforcements for internal locus of control learning can take place. Thus the overall dimensions in the team building profile (which comprise the directive and interactive properties), help to strengthen coping, learning and achieving (as outlined in the salutogenic profile).

Antonovsky (1979) refers to certain generalised resistance resources in the environment which strengthen the sense of coherence. In this research, the directives in the team building profile (role clarity, standards, organisation structure, supervisory effectiveness and supervisor support) are what Antonovsky (1979) refers to as the macrosociocultural generalised resistance resources (norms rules and regulations) which provide the structural resources for strengthening the individual's sense of coherence. The interactives in the team building profile (feedback and recognition, co-operation between teams, sharing of information, contribution to company profits, teamwork, team building, conflict handling, reward and recognition, communication and supervisory support) are a combination of interpersonal-relational generalised resistance resources (group identity and social relationships), artifactual-material generalised resistance resources (rewards and recognition) and valuative-attitudinal generalised resistance resources (planning skills for the planning of goals and objectives). The individual's perceptions of these measurable properties influence the strength of the sense of coherence and the behaviour of the individual, and these also impact on one's level of self-efficacy and internal locus of control, which in turn impact on performance. Internal locus of control is strengthened to the extent that the work environment is conducive to rewarding behaviour which is reinforced by the individual exercising his/her skills to solve problems. Self-efficacy is strengthened to the extent that the individual feels that he/she can exert an influence or have control over events in his/her environment, that he/she understands the goals and can achieve these in a supportive environment. The directive and interactive dimensions of the team building profile will influence the extent to which these orientations will strengthen.

The salutogenic concepts are what Cooper and Payne (1991) refer to as salutogenic strengths and these correlate with one another to form an holistic salutogenic model. Indeed they form the salutogenic profile in this research.

The salutogenic profile has an impact on the performance of an individual. This is particularly the case with self-efficacy, which according to Bandura directly influences performance. The strength of one's efficacy beliefs determine the level of performance

(Campbell & Lee, 1988:309). Likewise internal locus of control has an influence on performance, as evidenced from the literature reviewed in this research (Erwee & Pottas, 1982; Rose & Medway, 1981). The sense of coherence has an influence on both self-efficacy and internal locus of control and, through these, has an impact on performance. There is sufficient evidence in the literature to show that self-efficacious beliefs impact on performance.

The structure of the model comprises two main constructs, namely the team building profile and the salutogenic profile. The work performance profile is an independent profile. For the purposes of this research it is regarded as a salutogenic concept linked to the salutogenic construct. It appears that there are significant relationships between the dimensions and properties of the constructs and these relationships comprise the performance model.

Thus the performance model in this research is a causal relationship model indicating that the team building profile has an influence on the salutogenic profile, and as such, influences the behaviour and performance of an individual.

Next, the model, which will be discussed and tested, depicts the causal relationships between the dimensions of the team building profile on the one hand, and the salutogenic profile, which incorporates the work performance profile, on the other hand.

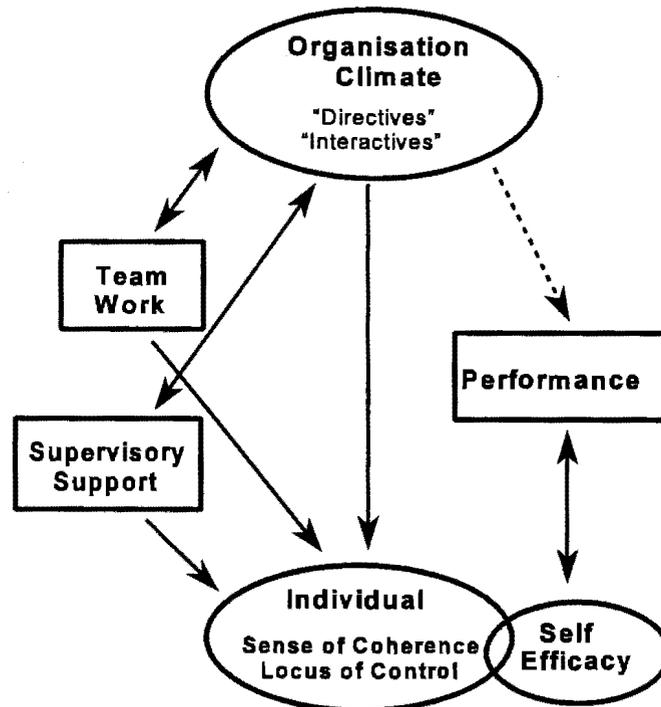


Figure The performance model used in this research

b) The integrated personality profile for the performance model

The integration of the three mentioned personality profiles will be made in this section, namely that of the optimal functioning team member, the optimal functioning individual and the optimal performing individual. The three profiles will be integrated to create the personality profile of an optimal functioning individual, within the context of the performance model in this research. In this way, it will support the underlying constructs of the performance model.

First the intrapersonal characteristics of the personality profile will be considered and thereafter the interpersonal characteristics.

Intrapersonal characteristics

The intrapersonal characteristics will be presented in terms of the cognitive, affective

and the conative characteristics.

- **Cognitive characteristics**

The optimal functioning team member objectively evaluates the rules and norms of the team, which make cognitive sense, and is able to identify with the aims and objectives of the team at a cognitive level. Membership of the team has cognitive importance for such team member. The individual has well developed problem solving skills.

The optimal functioning person is able to make cognitive sense of the stimuli in the environment, as ordered and predictable, and as a result is able to function at an optimal cognitive level. Such person is able to exercise control over events by using self-regulating mechanisms such as flexibility and problem solving skills, based on cognitive judgements of each situation. Making cognitive judgements of one's capabilities to achieve challenging goals provides satisfaction at a cognitive level.

The optimal performing individual makes cognitive sense of how he/she will be evaluated, and understands that effort expended by him/her, at a cognitive level, will enhance performance. Self-appraisal provides cognitive judgement of one's abilities of the likelihood of achieving results.

- **Affective characteristics**

The optimal functioning team member experiences a sense of identity, and of belonging to the organisation. Conflict handling, participation and the support from the supervisor are seen as factors contributing to these positive feelings. The person is positive within him-/herself and feels personally positive about the work at hand. He/she can identify with the organisation's objectives.

The optimal functioning person has a strong self-image and is able to perceive life as emotionally meaningful. Ego-identity relates to an integrated and stable inner person

displaying spontaneous emotional feelings. The person is satisfied with his/her circumstances. Emotions are experienced, but are cognitively controlled.

The optimal performing individual experiences satisfaction in being able to achieve the desired results. This enhances his/her self-image and self-confidence. The person has a positive self-esteem and this is further enhanced through self-improvement programmes. Self-assessment creates a sense of ownership in one's work and contributes to the positive feeling of worth through a realistic assessment of one's attributes.

- **Conative characteristics**

The optimal functioning team member has satisfaction in the achievement of performance results through involvement in setting objectives. The individual can cope with the pressures imposed on him/her in the pursuance of objectives. Emotions are experienced but are controlled.

The optimal functioning person views life as manageable and controllable, with sufficient internal and external resources, to manage the situation, and to see it as challenging. Internal resources at the individual's disposal are flexibility, farsightedness which enable the person to cope with life's events. Such a person enjoys setting and achieving challenging goals.

The optimal performing individual is clear about how he/she will be measured, and discrepancies between personal standards and performance urges him/her to personal improvement action. Self-assessment of behaviour and performance gives incentive for self-improvement action.

Interpersonal characteristics

The optimal functioning team member has sound relationships with other members of

the team and co-operates for the achievement of team objectives. Such a person communicates optimally with his/her peers, superiors and subordinates.

The optimal functioning individual forms sound relationships with other people in the community, and at work. The person encourages other individuals to express their views, and further, encourages self-directed behaviour in others. He/she enjoys contributing to relationship building through constructive conflict management.

The optimum performing individual has well developed relationships with other workers. He/she has developed an understanding with the supervisor through dialogue and communication.

COMMENT

Herewith the fourth aim of the research has been achieved namely, the development of the performance model and the integration of the personality profiles into that of the optimal functioning individual within the context of the performance model.

CHAPTER 5

THE EMPIRICAL RESEARCH

The aim of this chapter is to describe the empirical research. This refers to phase 2 and steps 1-5 of the research methodology.

To meet this aim the following method will be used. Firstly, the determination and description of the sample will be discussed. Secondly, choosing and motivating the psychometric battery will be reviewed. Thirdly, the method of data collection will be discussed. Fourthly, the statistical processing of the data will be discussed. Fifthly the research hypotheses will be formulated. The chapter will conclude with a summary.

5.1 DETERMINATION AND DESCRIPTION OF THE SAMPLE

The research was carried out in March, 1994 at a coal mining organisation in the Johannesburg Consolidated Investments Company Limited group of companies. The mine employs individuals in the disciplines of mining, engineering, metallurgy, technical services, finance and administration, manpower resources and security. The mining operations include both underground and open cast mining, and the mine is situated in the Witbank vicinity.

The population consists of employees from the mining, engineering, metallurgy, technical services, finance and administration, manpower resources and security disciplines. Such employees were from the Patterson C to E job bands. E band employees represent mine management; D band employees represent senior supervisors; C band represent artisans, miners, foremen and supervisors. The reason for excluding employees below the C band is that such employees would have had difficulty understanding the questions and statements on the questionnaires.

All of the C to E band employees were requested to be included on the survey. However, the final sample only included as many of the employees who were able to

attend the measurement sessions. Such employees are representative of the numbers employed in each discipline on the mine. The sample is reflected in table 5.1. The total sample is 245 or 45 % of the C-E band employees. There are 13 (76%) E band, 39 (49%) D band and 193 (42%) C band employees in the sample.

For the purposes of this research, the sample was measured as a total entity in order to determine the relationships between the constructs in the performance model. The sample is treated as a homogeneous group representative of the disciplines on the mine (Viviers, 1996:186).

TABLE 5.1: The sample for this research

Job Grade	Mining	Engineering	Metallurgy	Technical Services	Finance & Admin.	Manpower/ Security	Open Cast
E3	2 × Mine Manager						
E2			1 × Manager Metallurgy		1 × Manager Fin & Admin	1 × Manager Manpower	
E1	3 × Production Manager	1 × Resident Engineer		1 × Manager Geology 1 × Manager Survey			1 × Manager Process 1 × Production Manager
D4	1 × Planning Engineer	5 × Section Engineer	1 × Chief Chemist 1 × Plant Superintendent			1 × IR Manager	
D3				1 × Chief Ventilation Officer	1 × Financial Accountant 1 × Materials Manager	1 × Security Manager	1 × Planned Main Off 1 × Engineering Overseer 1 × Personnel Supt. 1 × Instr. Eng. Overseer
D2	6 × Mine Overseer	3 × Engineering Overseer	1 × Production Overseer	1 × Safety & Loss Control Co-ordinator 2 × Asst Chief Surveyor 1 × Evaluation Manager	1 × Payroll Accountant 1 × Senior Cost Accountant	2 × SPO	
D1		4 × Senior Foreman					1 × Drill & Blast Supt. 2 × Boilermaker Super. 3 × Mechanical Super.
C5	14 × Shift Boss	5 × Engineering Foreman 3 × Foreman Electrician 1 × Foreman Fitter 1 × Foreman Village Mnt 2 × Foreman Transport	3 × General Foreman				
C4		2 × Foreman Tracklayer	1 × Metallurgical Foreman				1 × Rigger 2 × Process Foreman 1 × Instrument Mechanic
C3							
C2		38 × Electricians 45 × Fitters 31 × Boilermakers 8 × Mechanics 2 × Carpenters 1 × Planner	12 × Shift Foreman				
C1	13 × Miner						1 × Process Controller
TOTAL	39	152	20	7	5	5	17

Overall Total = 245

According to Dziuban and Shirkey (1974:358) the Kaiser-Meyer-Olkin test of sampling adequacy for use in exploratory factor analysis should be greater than 0,5. In this research it was 0,9 overall.

Herewith is step 1 of the empirical research concluded, namely the determination and description of the sample.

5.2 CHOOSING AND MOTIVATING THE PSYCHOMETRIC BATTERY

The consideration given to the selection of the psychometric battery was guided by the literature review.

Various psychometric instruments were used, taking into consideration their applicability to the relevant concepts and theories of the research. Particular emphasis was placed on the reliability and validity of the measuring instruments (Kerlinger, 1986:405-422). Reliability refers to the precision, accuracy and stability of a measuring instrument. Validity refers to the extent to which the instrument measures what it is supposed to measure (Kerlinger, 1986). The following psychometric instruments were used:

5.2.1 The Organisational Climate (climate) questionnaire

This is used to measure the directive and interactive dimensions of climate as relevant to the team building profile.

5.2.1.1 The theoretical basis for its development

Organisational climate is a measurement of the psychological atmosphere of an organisation. There are certain measurable properties of climate which determine how individuals perceive this psychological atmosphere (Litwin & Stringer, 1968; Nasser, 1975). It is the measurement of these properties which forms the basis for the development of the climate questionnaire in this research. In this regard, reference is

made to the original work of Litwin and Stringer (1968) and Lyons (1971). The other factor, which influenced the development of the questionnaire, was the particular requirements of the mine.

In choosing the dimensions for measurement, consideration was taken of the directive or structural dimensions in the climate and the interactive dimensions. Gelfand's (1972) work on the measurement of climate, based on a factorial analysis of Litwin and Stringer's (1968) research identified a number of directive and interactive properties. According to Gelfand (1972), the "directives" are classified as structure, bureaucracy, standards and risk taking. The "interactives" are affiliation, involvement and support and other relationship-building aspects. Antonovsky (1979:117) refers to the "directives" as the macrosociocultural generalised resistance resources and the interactives as the interpersonal-relational generalised resistance resources and the artifactual-material generalised resistance resources (reward and recognition). In terms of the mine's requirements, there are modifications to the original dimensions developed by Litwin and Stringer (1968) and Gelfand (1975), although the dimensions being measured can be classified as directives and interactives.

The contribution of Lyons (1971) to the development of the climate questionnaire added to the list of directives. He regarded role clarity an important determinant of the psychological atmosphere of an organisation. In turn the psychological atmosphere resulting from role clarity is measured, according to Lyons (1971), through its effect on job satisfaction, propensity to leave and job tension perceived by the individuals.

The directive and interactive climate dimensions affect the perceptions and behaviour of an individual (Kline & Boyd, 1991:306) and it is these which have been included in the climate questionnaire. The final choice of dimensions are based on the research of Litwin and Stringer (1968), Gelfand (1972), Lyons (1971), Prakasam (1986) and the particular needs of the mine.

5.2.1.2 *The rationale of the questionnaire*

The questionnaire is designed for recording the perceptions of an individual with respect to the psychological atmosphere of the organisation. These perceptions influence the behaviour of the individual and have an effect on his/her performance. Thus the instrument is capable of measuring the properties of climate as a mechanism for determining and predicting behaviour and performance (Prakasam, 1986). High scores on the items indicate that the perception of climate is positive, with the exception of items in job tension and propensity to leave where low scores are desirable.

5.2.1.3 *The description of the scale*

The questionnaire consists of 14 dimensions of climate, each dimension being measured by five statements or questions. Each individual responds to each statement or question in relation to how he/she perceives the situation. The questionnaire consists of 70 items. These are answered on a 5-point Likert-type scale from very positive (definitely agree) = 5, to very negative (definitely disagree) = 1.

Most of the items are scored in a positive direction. The score for each dimension is the mean of the sum of the responses to each individual item. There are items which are reverse scored with definitely agree = 1 and definitely disagree = 5. For reference, these are items 3, 13, 23, 27, 29, 30, 32, 36, 41, 47, 50, 51, 53, 54, 57, 58, 61, 63, 65 and 69.

Whilst the dimensions are scored in a positive direction, there are two dimensions (job tension and propensity to leave) where the higher the score the more negative the situation, and the more negative an individual perceives the climate. For the remaining 12 dimensions the higher the score the more positive the situation. Dimensions 5, 7, 8, 10 and 14 are interactive dimensions. Dimensions 2, 3, 4, 6 and 11 are directive dimensions and dimensions 1, 9, 12 and 13 are a combination of the interactive and directive dimensions. This has been determined by factor analysis (refer 6.3.1). Each

dimension is scored separately resulting in 14 separate scores for the climate questionnaire. This serves a useful purpose for the analysis of the data and satisfied the requirements of the mine management. The dimensions and items used in this research are the following:

Table 5.2: Climate questionnaire dimensions and items

DIMENSIONS		ITEM NUMBERS				
1	Decision Making	1	15	29	43	57
2	Job and Organisation Structure	2	16	30	44	58
3	Role Clarity	3	17	31	45	59
4	Job Standards	4	18	32	46	60
5	Conflict Handling	5	19	33	47	61
6	Supervisor Effectiveness	6	20	34	48	62
7	Communication	7	21	35	49	63
8	Team Building	8	22	36	50	64
9	Responsibility	9	23	37	51	65
10	Reward	10	24	38	52	66
11	Job Satisfaction	11	25	39	53	67
12	Job Tension	12	26	40	54	68
13	Propensity to Leave	13	27	41	55	69
14	Contribution to Company Profits	14	28	42	56	70

5.2.1.4 Administration of the questionnaire

This is a self-scoring questionnaire with each individual required to respond separately to each item. The respondent is instructed by the test administrator how to complete the questionnaire. Thereafter the respondent completes the 70 items by deciding which alternative for each question best describes how he/she perceives a particular property of climate.

5.2.1.5 Interpretation

The questionnaire measures the perceptions of an individual about the psychological atmosphere of the organisation (Taguri & Litwin, 1968:27). Each dimension is measured separately and reflects the perceptions of the individual in these dimensions. As a result, an analysis can be carried out as to what dimensions are perceived

positively and which are perceived negatively by the individual. This serves as a useful diagnostic technique to ascertain the strengths and weaknesses of the organisational climate. The higher the score the more positive the climate, except for job tension and propensity to leave where the higher the tension and propensity to leave, the worse the situation.

The literature indicates that the more positive the climate the higher is the individual's achievement motive using McLelland's need for achievement as a measurement (Litwin & Stringer, 1968:74).

Other research has shown a significant relationship between perceptions of climate and performance (Burke-Litwin, 1992; Day & Bedeian, 1991:590). Thus the measurement of climate will give an indication of the level of performance, and where improvements should be implemented, within the organisation, to improve the behaviour and the performance of an individual.

5.2.1.6 *Reliability and validity of the questionnaire*

- **Reliability**

The questionnaire used in this research was developed at the request of mine management to measure climate. As such, measures of reliability were determined through the use of the questionnaire on the mine. Indications are that the Cronbach's alpha measure of internal consistency and the measure of item-test correlations are good and will be reported in the results chapter 6. In a study, conducted by Day and Bedeian (1991:595) using climate dimensions, some of which are similar to those used in this research (structure, responsibility, reward and standards), Cronbach alphas of between 0,73 and 0,83 were achieved. Pritchard and Karasick (1973) reported Cronbach alphas for their measurement of structure 0,73, for decision making 0,72 and for conflict handling 0,68. These also provide useful guidelines of measurements of internal consistency in similar climate questionnaires.

Lyons (1971) reported the split-half reliability for the role clarity index as being 0,70. Lyons (1971) also reported reliability statistics for the propensity to leave index. The correlation between items r_{12} as 0,75, r_{13} as 0,59 and r_{23} as 0,54. For the job tension index Lyons (1971) reported a split-half reliability of the index to be 0,70.

The above data provide useful information regarding the reliability statistics of similar climate questionnaire measurements and these serve as useful guidelines analysis in this research.

- **Validity**

According to Burke and Litwin (1992), Day and Bedeian (1991), measurement of climate correlates with performance measurements. This is referred to as criterion validity. On the other hand, measurements of climate dimensions in this research correlate with other measurements in the team building profile, which indicates a construct validity (refer 5.4.3.3).

5.2.1.7 Motivation for inclusion in the research

For the purposes of this research, the climate survey was used because its dimensions measure the psychological atmosphere of the organisation and the properties of organisational climate as outlined in chapter 2. There is sufficient research evidence to suggest that these properties of climate are either directive or interactive, and these can be measured using a suitably developed climate questionnaire (Kline & Boyd, 1991; Likert, 1961). These properties, contained in the climate questionnaire in this research, were supported by mine management as being important for measurement.

The psychometric properties of the climate questionnaire are such that it is deemed appropriate for this research. It is based on the psychometric instruments developed by Litwin and Stringer (1968), Lyons (1971) and Prakasam (1986), which are all well researched.

5.2.2 The Supervisory Support questionnaire

This is used to measure the supervisory support properties of the team building profile.

5.2.2.1 *The theoretical basis for its development*

It has been established by Ballantine, Nunns and Brown (1992:208) that supervisory support is a key element in the goal-setting process. The purpose for the development of the supervisory support questionnaire, is to measure those aspects of supervisory support which influence the individual in the achievement of his/her goals.

There has been some debate in the past as to what actually constitutes supervisory support (Tardy, 1985:187). House (1981) specified four types of social support which he believes relate to the concept of supervisory support. House's (1981) approach is specific namely, an emotional concern for others (liking, love and empathy), instrumental aid (providing goods and services), information about the environment and appraisal (providing information relevant to self-evaluation). In this regard, House (1981) mentions that, when viewed logically, support from one's supervisor certainly involves the provision of the necessary resources (goods and services) and certainly involves providing information required for coping well and solving problems, which the individual may be facing. According to House (1981) the provision of these elements of support by a supervisor would "ensure that task requirements are understood, situational constraints identified and adequate tools and resources are provided". Consequently, Ballantine et al (1992:209) suggest that House's (1981) dimensions of support represent an adequate conceptual basis for developing a measure of supervisory support.

There are others who agree with House (1981) on what they believe would provide a basis for the measurement of supervisory support. In this regard Babin and Boles (1996:58) maintain that measurements of supervisory support should include the degree to which an employee perceives that his/her supervisor offers him/her support,

encouragement and concern. In particular he/she should be provided with adequate equipment and training. Eisenberger, Huntington, Hutchinson and Sowa (1986:500) also allude to supervisory support as being a measure of an employee's perceptions that his/her contributions are valued by the organisation and that the organisation cares about him/her. Michaels and Spector (1982, in Iverson & Roy, 1994:20) suggest that supervisory support should measure the extent to which the supervisor "expresses consideration for the feelings, problems and input into the decision making processes of the subordinates". Cummins (1989:772) suggests that measures of supervisory support should gauge the extent to which a subordinate feels that his/her supervisor contributes to his/her development of self-esteem, through problem-solving and informational support.

Based on research, a 22-item questionnaire was developed. The questionnaire measures a general factor supervisory support, and the four pillars of support. These are information support, appraisal support, instrumental support and emotional support.

5.2.2.2 *The rationale of the questionnaire*

An underlying assumption of supervisory support is that good support leads to better goal setting and performance. A high score indicates good supervisory support and a low score indicates weak support. Based on the results of the questionnaire, one can predict the likelihood of job success.

5.2.2.3 *The description of the scale*

The supervisory support questionnaire comprises 22 items, of which 17 items are taken from the Ballantine et al (1992) scale. In addition, another 5 items have been included at the request of mine management. The dimensions measured are the following:

Information Support	:	Items 11, 15, 18, 21
Appraisal Support	:	Items 3, 4, 9, 19

Instrumental Support : Items 1, 5, 6, 8, 13, 14, 20, 22
 Emotional Support : Items 2, 7, 10, 12, 16, 17

The supervisory support questionnaire is unidimensional, measuring a single factor (namely supervisory support). However, it has been found expedient to score the responses to the questionnaire under each of the four dimensions separately for a clearer understanding of the supervisory support properties.

The scoring of the responses is based on a 5-point Likert-type scale. Definitely agree with the statement = 5; definitely disagree with the statement = 1. The scores for each dimension are calculated as the mean of the sums of score in each item comprising a dimension. An example of the scoring of an item is the following:

ITEM NO. 8	Definitely Agree	Agree	Uncertain	Disagree	Definitely Disagree
Does your supervisor give you the assistance you need regarding your objectives?	5	4	3	2	1

All the items are scored in a positive direction. The higher the scores on items or dimensions, the more positive the perceptions of supervisory support as perceived by an individual. There are no reversals in any of the items.

5.2.2.4 Administration of the questionnaire

The respondent is instructed how to complete the questionnaire. The respondent reads the instructions and proceeds with the completion of the 22 items by deciding which alternative best describes his/her perceptions of supervisory support in the organisation.

5.2.2.5 Interpretation

The scores on this scale give an indication of the individual's perception of the support he/she receives from the supervisor.

The dimensions are scored separately for analysis and feedback purposes. The higher the score on the 5-point scale on each item and dimension, the more positive is the perception of the supervisory support in the organisation. Furthermore, research has shown that the more positive the perception of supervisory support the more likely an individual will set higher and challenging goals (Latham & Saari, 1979:151). Bandura (1982:122) suggests that a supervisor who ensures that a subordinate understands his/her goals and assists in his/her goal attainment contributes to the subordinate's mastery experiences. Thus positive perceptions of supervisory support contribute to the attainment of goals. Locke and Latham (1984) maintain that one of the positive effects of good supervisory support is that an individual obtains useful feedback on his/her performance and, as such, is able to assess performance against performance standards and adjust his/her level of effort accordingly (Bandura & Cervone, 1986:92-113).

5.2.2.6 *Reliability and validity of the questionnaire*

Whilst reliability and validity will be discussed more fully in the results chapter 6, it would be useful to present some of the reliability and validity data for the Ballantine et al (1992) scale, on the basis that the supervisory support questionnaire was largely developed from this scale and incorporates all the items from that scale. Although the two instruments are not identical there is sufficient similarity between them for the reliability and validity data from the Ballantine et al (1992) scale to be a useful indication in this regard.

- **Reliability**

The internal consistency based on Cronbach's alpha for the Ballantine et al (1992) scale was reported as 0,97 (N = 243). It should be noted that similarly high Cronbach alphas were achieved using the supervisory support questionnaire in this research (refer appendix 1).

Other normative studies, comparing the Ballantine et al (1992:213) goal setting support scale with similar measures of supervisory support also yielded useful reliability statistics. The following significant correlations were obtained:

Variable	The Goal Setting Support Scale
<i>Supervisory Support</i>	0,78
<i>Satisfaction with Supervision</i>	0,76
<i>Leader-Member Exchange</i>	0,75

The above data including the Cronbach's alphas, indicate that the Ballantine et al (1992) scale is a reliable measurement of supervisory and goal setting support.

- **Validity**

In terms of construct validity, Ballantine et al (1992) reported that Kaiser's Measure of Sampling Adequacy was highly satisfactory (MSA = 0,95). This is similar to that obtained in the use of the supervisory support scale in this research where a high M.S.A. was obtained. (See Results chapter 6.)

Concurrent validity was evaluated by correlating the Ballantine et al (1992) scale with conceptually related dimensions. Statistically significant correlations were obtained between the goal setting support scale and goal emphasis (N = 192, r = 0,63) between the goal setting support scale and work facilitation (N = 191, r = 0,72) and the scale and organisational commitment (N = 76, r = 0,52). For construct validity refer to 5.4.3.3.

5.2.2.7 *Motivation for inclusion in the research*

The goal setting support scale (Ballantine et al, 1992) makes use of House's (1981) typology as outlined in chapter 2. The supervisory support questionnaire, which is based on the properties of House's (1981) goalsetting support scale, has sufficient

psychometric properties for inclusion as a measurement instrument for supervisory support in this research.

5.2.3 The Team Work questionnaire

The team work questionnaire, which was designed specifically for the particular needs of the mining operation in this research, is used to measure the team work properties in the team building profile.

5.2.3.1 The theoretical basis for its development

A number of significant facets of team work form the basis of the development of the questionnaire.

Trist (1981:872) maintains that the considerations for effective team work are, cohesiveness between team members, involvement in decision making, co-operation and supportive leadership. In support of this, and also important for the development of a suitable team work measuring instrument, is what Hanson and Lubin (1986:27-35) describe as creating effective team work. They maintain it is a process whereby each team member works together, facilitating an atmosphere of interdependence, and working toward effective problem solving and task accomplishments. Furthermore they suggest that effective team work is also characterised by common goal setting, the provision of appropriate resources, and an environment where each team member is prepared to listen to one another and express his/her views in an open manner. Trust between team members and creativity are also important characteristics of effective team work (Hanson & Lubin, 1986:27-35).

An interesting contribution as to what constitutes effective team work was made by Kazemek (1991:15). He maintains that effective teams have clear goals and objectives, constructive and open conflict handling, participative communication, a healthy approach to problem solving and clear lines of responsibilities and authority. In relation

to this, Huszco (1990:37-43) suggests that team work is effective when goals are clearly defined, team skills are present, roles are understood and interpersonal relations are sound.

When the questionnaire was developed, the researcher took into account the critical areas of: team cohesiveness, goals and roles, the development of trust, open communication and sharing of information, the relationships between team members, team goals and co-operation, feedback and recognition. The questionnaire was developed on the mine and was piloted, amongst employees from different sections on the mine, before it was used in its final format.

5.2.3.2 *The rationale of the questionnaire*

Team work is an important variable in the team building profile of this research, and as such, the use of a team work questionnaire to measure the dimension of team work is justified. The team work questionnaire measures aspects of team building which are not captured through the measurement of either climate or supervisory support. High scores on the team work questionnaire indicate that aspects of team work are functioning well. Low scores on the dimensions indicate poor team work.

5.2.3.3 *The description of the scale*

The dimensions which were used in the construction of the questionnaire are as follows:

The relationship amongst team members: (team work within teams)	Items:	13, 16, 17
Sharing of information:	Items:	3, 4, 8, 11, 14
Co-operation between teams:	Items:	10, 12, 15
Feedback and recognition:	Items:	1, 2, 5, 6, 7, 9

Each dimension comprises a number of items and each item is scored on a Likert-type 5-point scale.

There are 17 items in the questionnaire. An example of an item is:

Employees are told where the mine is going and what the plans for the future are:				
Definitely True	Mostly True	Neither True nor False	Mostly False	Definitely False
5	4	3	2	1

5.2.3.4 Administration of the questionnaire

The questionnaire is a self-administering instrument. The questions require that the individual responds as he/she perceives different aspects of team work on the mine. The individual is requested to respond to one alternative in each item that he/she feels best applies. Only one answer per item is permitted. The items are measured and scored in the positive direction. The higher the score the more positive the perception of team work. Scores are given as means for the dimensions and means are derived from the sum of the scores of items in each dimension.

5.2.3.5 Interpretation

The total of the scores, in each of the dimensions, gives a measurement of each individual's perception of team work in the organisation. Each dimension is measured separately for the purposes of this research. High scores are indications of good team work. Low scores indicate poor team work. With regard to the benefits from good team work, the researcher has referred to the findings of Boss (2.3.3.2) and McNamara (2.3.3.1).

5.2.3.6 *Reliability and validity of the questionnaire*

This questionnaire was developed specifically for use in the measurement of team work on the mine. Therefore there are no previous supporting reliability and validity statistics available. However, the questionnaire was reliably constructed based on the input from each employee attending focus groups on the mine. Face validity was based on the mine management's acceptance of the team work questionnaire for use on the mine. The reliability statistics (Cronbach alpha and item-test reliabilities) and the construct validity of the questionnaire will be reported in the results chapter 6. Indications are that the instrument is reliable and correlates well with other measurements in the team building profile, indicating the presence of construct validity (refer 5.4.3.3).

5.2.3.7 *Motivation for inclusion in the research*

For the purposes of this research, the team work questionnaire was specifically developed for the measurement of the team work concept as outlined in chapter 2 of this research which supports the underlying operational assumptions of team building. The team work questionnaire, as developed on the mine, was chosen as the most appropriate measurement of team work. The method used to develop the questionnaire was through the use of focus groups of mine employees and vetted by three industrial psychologists in the JCI organisational development department. The stable psychometric properties of the questionnaire make its use appropriate for this research.

5.2.4 **The Sense of Coherence questionnaire**

The sense of coherence questionnaire was chosen for the measurement of a sense of coherence as manifested in salutogenesis.

5.2.4.1 *The theoretical basis for its development*

Antonovsky (1987:87) developed the questionnaire to measure the sense of coherence

concept. This includes the components of comprehensibility, manageability, and meaningfulness.

Antonovsky (1993:725) referred to the sense of coherence as a global orientation by which he meant a way of looking at the world in general rather than a response to a particular situation. The selection of items captured this global orientation.

An aspect which Antonovsky (1993:726) considered necessary when constructing the questionnaire was to make sure that the measurement should be universally applicable, one which cuts across lines of gender, social class and culture.

The manner in which Antonovsky (1987:63-88) developed the questionnaire is clearly enunciated by him. A group of 51 persons were selected who fulfilled two criteria: on the one hand they were known to have undergone severe trauma during their lives; and on the other hand they were deemed by a referee, to be functioning well. Each person was then interviewed by Antonovsky and his team to find out more about him/her. The team posed the question "please tell about your life" and this probing was sufficient to obtain a "rich human document" about each person's life. This technique is known as "mapping sentence for questionnaire design" (Antonovsky, 1987:77). Each interview was transcribed. The 51 respondents were then classified into those deemed to be strong, moderate and weak on the sense of coherence rating scale. The research team then examined the protocols of those who were strong, and those were weak in terms of a sense of coherence. Then they isolated the elements of the way one looks at life, for a person with a strong sense of coherence, and which were absent in a person with a weak sense of coherence. According to Antonovsky (1987:66), "over and over, a number of phrases, even exact words emerged, expressing ways of looking at one's experiences and the world". The phrases and words bore similarity to the three characteristics of the sense of coherence construct. Using Gutman's facet design technique (Shye, 1978) and item-analyses, Antonovsky (1987) was able to construct the questionnaire comprising suitably designed questions chosen from a bank of items, measuring comprehensibility, manageability and meaningfulness. After the usual

procedures of consulting with colleagues, pre-testing and revising items, the scale was ready for field testing, using a national sample of Jewish adults and in 1983 he published the test in a scientific journal (Antonovsky, 1993: 726). According to Antonovsky, he had developed an instrument based on sound theory.

There is sufficient research evidence to suggest that the questionnaire measures one global factor and that the three components are merely highly correlated facets of this global factor. In fact research carried out by Haepers (Antonovsky 1993:731) indicates that all items except two (no. 10 and no. 17) load high on the first factor. Flannery and Flannery (1990:415) also argue for a single factor solution. Frenz, Carey and Jongensen (Antonovsky 1993:731) also maintain that the scale is a “unidimensional instrument measuring sense of coherence”.

Therefore, one should analyse the scores on the items as a global result, rather than treating each of the components separately, unless a researcher wishes to make a separate analysis on each of the three components which could provide meaningful results (Antonovsky, 1987: 16-22). This approach has been adopted in this research.

5.2.4.2 The rationale of the questionnaire

The rationale of the questionnaire is, that it measures the respondent's global orientation or how one copes as determined by the concepts imbedded in the sense of coherence and its components of comprehensibility, manageability and meaningfulness (Flannery & Flannery 1990: 416). A person with a high score is less likely to perceive situations as ego-threatening, and anxiety arousing (Antonovsky & Sagy, 1986: 214-216). A person who can't cope with stressful situations will score low on the scale.

5.2.4.3 The description of the scale

The questionnaire is a self-reporting instrument directed at assessing one's tendencies to apply successful coping mechanisms, or what may be termed behavioural

immunology by Antonovsky (1984b:117). The questionnaire consists of 29 items rated on a seven-point scale (agreement to disagreement) that indicate the extent to which a respondent agrees or disagrees with the meaning of the items (Antonovsky 1987:79). A score of 1 and 7 represent the outer limits of the continuum. A score of 4 is in the middle and suggests that both poles apply equally.

As already discussed under 5.2.4.1, the questionnaire is an unidimensional scale consisting of three components that are inextricably intertwined (Antonovsky, 1993). A respondent's score on the questionnaire is the sum of his/her responses on each of the components, summed to give an overall score. The three components consist of comprehensibility, manageability and meaningfulness.

- **Comprehensibility** measures the extent to which an individual perceives the stimuli that confront him/her, from the internal and external environments as making cognitive sense, as information that is ordered, consistent structured and clear. According to Kalimo and Vuori (1990:77) when comprehensibility becomes internalised it turns into an order-seeking attitude and the ability to find structure in the events. This scale comprises items 1, 3, 5, 10, 12, 15, 17, 19, 21, 24 and 26.
- **Manageability** measures the extent to which an individual perceives that resources are at his/her disposal and are adequate to meet the demands posed by the stimuli from the environment. This scale comprises items 2,6, 9, 13, 18, 20, 23, 25, 27 and 29.
- **Meaningfulness** measures the feeling that one has of being a participant in shaping one's destiny. It explains the motivational element in life in that life has meaning emotionally not only cognitively. This scale comprises items 4, 7, 8, 11, 14, 16, 22 and 28.

5.2.4.4 *Administration of the questionnaire*

The questionnaire can be completed by an individual or in groups. The respondent reads the instructions and thereafter answers the 29 items by deciding which score in each scale best describes his/her perceptions. The questionnaire is scored by adding up the scores for each of the three components thereby calculating a score for each. The total score is a summation of the three components scores. Thirteen items are scored negatively.

5.2.4.5 *Interpretation*

Each of the components of comprehensibility, manageability and meaningfulness can be scored separately, although a composite score (maximum 203) is mostly obtained. The higher the respondent's score the higher that person is located on the health ease/disease continuum (the healthier the person). The lower the respondent's score, the lower is his/her sense of coherence.

Although the three components are intertwined, it is possible to have dissimilar scores on the components which can then be interpreted in various ways. Antonovsky (1987:21) cites an example where one's social role can influence the score one achieves. For instance one can be in a social role that provides life experiences of consistency and a reasonable underload-overload balance, but does not provide the experiences of participation in shaping outcomes because one's potentials are ignored. This according to Antonovsky (1987), is the classic situation of the contemporary middle-class housewife. Being in such a role would lead to her scoring high on the comprehensibility and the manageability components but low on meaningfulness. Antonovsky (1987:20-27) suggests that other combinations of scores can be achieved which can be analysed and interpreted accordingly. However, of the three components, Antonovsky (1987:22) suggests that meaningfulness seems to be the most crucial if any were to be singled out. He maintains that without it, being high on comprehensibility and manageability is likely to be only temporary. Notwithstanding this, Antonovsky (1987:22)

suggests that coping depends on the sense of coherence as a whole. He recommends a composite score for a balanced understanding of the sense of coherence (Antonovsky, 1993:725). Separate component scores can also be used (view of the researcher).

5.2.4.6 *Reliability and validity of the questionnaire*

- **Reliability**

Antonovsky (1993:727) reports that the Cronbach's alpha measure of internal consistency for 26 studies using the 29-item questionnaire ranges from 0,83 to 0,95. These high alphas were achieved amongst a variety of populations and for different languages and cultures. Antonovsky (1993) regards this as a significant achievement.

Reliability was achieved by Antonovsky (1987:82) through the use of facet design as a basis for questionnaire construction. Before going into the field, he asked three colleagues to check each item for its appropriateness. They each recorded a facet profile, ensuring that the 29 items indeed covered the three important components which comprise the sense of coherence construct.

Other reliability statistics are based on test-retest correlations. In a study conducted amongst Israeli retirees in a kibbutz (N = 639) the test-retest correlations using the 29-item questionnaire after one year was 0,54. Research conducted amongst Israeli medical students by Carmel and Bernstein (1990:51-60) revealed test-retest correlations of 0,76 after an interval of one year.

The reliability statistics and the manner in which the 29-item questionnaire was constructed indicate that the questionnaire is indeed a reliable measuring instrument for purposes of this research.

- **Validity**

The facet approach to construction of the scale is a form of content validity. An item was only included after three colleagues, familiar with the theory, had independently concurred that such item should be included and if it referred clearly to one and only one of the three components.

Antonovsky (1987:82) reported a study in which construct validity was achieved. Rumbaut (Antonovsky, 1987:83) administered his 22-item sense of coherence scale and Antonovsky's 29-item questionnaire to 336 undergraduates. The recorded alphas of the two scales were 0,90 and 0,88 respectively. The correlation between the two scales was 0,64, which Antonovsky (1987) suggests "is a more respectable indication that the two scales are measuring a similar construct". Antonovsky (1993:730) also reported a correlation of 0,50 with a measurement of hardiness, the construct which according to him has a close affinity with the sense of coherence.

Antonovsky (1987:83) recorded evidence of discriminant validity. He suggests that it is reasonable to expect a significant positive correlation between the sense of coherence scale and the I-E locus of control scale, on which he maintains a low score expresses a perception of events being in the control of the perceiver rather than in the hands of chance or powerful others. The correlation between the 29-item sense of coherence scale and the I-E locus of control scale was recorded as -0,39 (Antonovsky 1987:83).

The 29-item sense of coherence questionnaire can be regarded as a valid instrument, measuring what it is meant to measure.

5.2.4.7 *Motivation for inclusion in the research*

For the purposes of this research the sense of coherence questionnaire was chosen as the measuring instrument because it supports the operationalisation of the concept of sense of coherence as discussed in chapter 3. Antonovsky (1987:79) maintains that

there are sufficient grounds to suggest that the questionnaire provides a sufficient representation of the sense of coherence construct. The questionnaire is also used in this research based on the sound psychometric properties described in 5.2.4.6.

5.2.5 The I-E Locus of Control questionnaire

The I-E locus of control questionnaire, referred to by Strümpfer (1990:271) as the I-E scale, is used to determine the levels of internal locus of control in this research as manifested in salutogenesis.

5.2.5.1 The theoretical basis for its development

According to Rotter (1990:491), the predictive value of a test is likely to be increased "if the principles of measurement are derived from the same theory as the constructs to be measured". Rotter (1966:1-28) states that his I-E scale was constructed keeping in mind " a theoretical variable and its hypothesised characteristics. In keeping with social learning theory the unit of investigation is the study of the interaction of the individual in his/her meaningful environment". Measurement determines the perceptions and beliefs that the individual has in relation to the environment and, as far as social learning theory is concerned, an understanding of these beliefs gives an indication of where the reinforcement of behaviour comes from – internal or external. According to Rotter (1990:491), behaviour in different situations will be different and in constructing the I-E scale, he wished to sample many different situations without making the total score dependent on one kind of situation. As a result, in constructing the scale, Rotter (1990) did not aim for a high Cronbach's alpha, his reasoning being that the correlations among different behavioural referents for the concept should be positive but not necessarily high.

Another feature, when constructing the scale, was to consider the aspect of social desirability. A measurement which is not going to deliver socially desirable responses is preferred. In order to achieve this, Rotter (1990:492) correlated the results from his

I-E scale with the Crowne-Marlowe (1964) Social Desirability Scale. He established that the lower the correlation between the two measures, the better the I-E scale would be in eliminating socially desirable responses. In order to achieve this, Rotter moved away from the Likert formulas to a forced-choice format. In doing so, he was able to bring the correlation down to a reasonable and acceptable level, ensuring that responses to his scale would not be made on a socially desirable basis.

Two different criteria and two different population groups were used in the selection of the items. The two criteria were performance on ambiguous tasks (college students), and information seeking behaviour (patients). An item which predicted either criteria, and correlated with other items of the scale significantly higher than it did with the Crowne-Marlow scale, was retained. It took five years to research and five forms of the test were used before the final I-E scale was published (Phares 1955). Rotter (1990:492) sums up the amount of effort expended in its development: "I believe the implications are that much hard, thoughtful work has to go into devising a useful measure of a personality variable. One has to have a theory of behaviour and, consequently, test-taking behaviour, as well as some notion of the theoretical properties of the variable being studied in order to devise a construct valid measure". This is what was achieved in developing the I-E scale (opinion of the researcher).

The final scale adopted by Rotter and his researchers, Phares, James, Liverant, Crowne and Seeman, referred to in Rotter (1975:62), was developed on college students. It consists of 23 items and 6 filler items. There has been a certain amount of controversy surrounding the dimensionability of the scale. When the items were selected, these were chosen on the basis of their correlation with the whole scale, thus making the I-E scale unidimensional in nature (Ferguson, 1993:1268).

According to Rotter (1966:1-28), a factor analysis of the scale showed that most of the variance was accounted for by one general factor. Others have argued that it is multidimensional (Erwee & Pottas, 1982). For the purposes of this research, the I-E scale has been used as a unidimensional measure of generalised reinforcements of

expectancies in either an internal or external direction.

5.2.5.2 *The rationale of the questionnaire*

The Internal-External locus of control concept has been identified by Antonovsky (Cooper & Payne, 1991:67-103) as one of the salutogenic strengths in salutogenesis. On the basis that the I-E scale distinguishes between an internally and externally controlled individual, the measurement of these orientations plays a significant role in the overall measurements of salutogenesis in this research. A knowledge of whether or not a person's behaviour is generalised in the direction of either internal or external reinforcement of expectations, gives an indication of whether or not the person can cope with and learn from experiences in life (internal orientation) or is dependent on some more powerful external others in which case the use of one's skills to cope and learn are negligible (external orientation). The scale, therefore, makes a very useful contribution to understanding an individual's behaviour and it contributes to an understanding of salutogenesis. High internality is reflected by a low score on the questionnaire and high externality is reflected by a high score.

5.2.5.3 *The description of the scale*

The final version of the I-E scale is a 29-item, force-choice test including 6 filler items which are intended to make the purpose of the test somewhat more ambiguous (Rotter, 1966:1-28). Each item comprises two statements, one referring to an internal orientation and the other to an external orientation of reinforcement of behaviour.

5.2.5.4 *Administration of the questionnaire*

The questionnaire can be administered individually or in groups. The respondent reads the instructions on the questionnaire. Thereafter the 29 items are answered and for each item the individual responds in a manner which he/she more strongly believes represents his/her views, making a cross in the box adjacent to the appropriate

statement.

The questionnaire is scored by adding the scores for all items, noting that some items are reversed. It is scored in an external direction, which means that a high score reflects external locus of control, whilst a low score indicates internal locus of control.

5.2.5.5 *Interpretation*

The total score on the questionnaire gives an indication of the individual's perspective regarding locus of control. Thus for the purposes of this research the lower the score on the scale the more internal the orientation of the individual being measured (Payne & Manning, 1988:141; Rotter, 1975:62). The individual can be classified as being either internal or external locus of control orientated, depending on his/her score on the scale.

5.2.5.6 *Reliability and validity of the questionnaire*

- **Reliability**

Layton (1985:1165) maintains that the test-retest reliability coefficients for the I-E scale as reported by Rotter (1966:1-28), were given as varying between 0,49 and 0,83 during a one to two month intervening period. Andrisani and Nestel (1976:156) reported a stability coefficient of 0,55 for a large sample over a period of two years.

The Cronbach's alpha reported by Rotter (1990:489) is usually low because of the generalised nature of the measuring instrument. In this regard he stated, "We did not try for a high alpha because we assumed that the correlations among different behavioural referents for the concept were positive but low". Results from this research, support the above in that the Cronbach's alpha is relatively low (refer chapter 6 - Results).

In terms of item consistency in relation to total test score, Rotter (1966:1-28) reported on research he conducted with 200 males and 200 females using the I-E scale. He conducted biserial item correlations of each item with the total score excluding the item. The correlations per item range from 0.15 to 0.55 with an average of approximately 0.27. He commented that the correlations are moderate but consistent. Similar moderate item-test correlations were recorded in the results of this research (refer chapter 6).

- **Validity**

There are three types of validity which indicate that the scale measures what it is meant to measure. These are discriminant, construct and predictive validity. Pheiffer (1994:42) reports that discriminant validity of the scale is indicated by the low relationships it has with such variables as intelligence and social desirability. Construct validity is indicated by Antonovsky (Cooper & Payne, 1991) who maintains that the I-E locus of control construct is positively correlated with the salutogenic strengths, which includes sense of coherence, hardiness and self-efficacy. In terms of measures of predictive validity, research presented by Erwee and Pottas (1982:79) suggests that a higher degree of internality is positively associated with recognised performance measurements, such as longer persistence in achievement of skill-related tasks, academic achievement, greater job involvement and higher achievement motivation.

5.2.5.7 *Motivation for inclusion in the research*

It was reported in chapter 3 that locus of control is a salutogenic construct (Cooper & Payne, 1991:67; Strümpfer, 1990:265). The more a person is able to influence his/her environment and take control of events that influence his/her life, the higher will be his/her salutogenic strengths. It can be predicted that the higher one's internal locus of control, the higher the other salutogenic strengths are likely to be, and the higher will be one's level of performance. In this regard, Foley and Clifton (1990:46) reported high achievement from educational instructors with high internal locus of control.

The I-E scale has sound psychometric properties (refer 5.2.5.6) for use as a measurement in this research. Furthermore, as a result historic autocratic style of management on South African mines a measurement that determines one's level of internal locus of control is important. It is therefore appropriate to include the I-E scale in the psychometric battery of measurements in this research.

5.2.6 The Self-Efficacy questionnaire

The self-efficacy questionnaire of Tipton and Worthington (1984:545-548) was used to measure self-efficacy as manifested in salutogenesis.

5.2.6.1 The theoretical basis for its development

Self-efficacy theory maintains that personal mastery expectations are the primary determinants of behavioural change, and that individual differences in past experience and attribution of success to skill or chance, result in different levels of generalised self-efficacy expectations (Sherer & Maddux, 1982:663). In order to measure the generalised self-efficacy expectations a scale should be used which encapsulates self-efficacious determinants in this manner. It is on this basis that a generalised scale of self-efficacy has been used in this research. Although the literature suggests that self-efficacy has been primarily conceptualised as a situation specific belief, there is sufficient evidence that experiences of personal mastery that contribute to efficacy expectancies generalise to actions other than the target behaviour (Bandura, Adams, & Beyer, 1977:124). These authors suggest that an individual, with various and numerous histories of success, expects to have positive self-efficacy expectations in a greater variety of situations than an individual with limited success and failure. An individual's past experiences with success and failure in a variety of situations should result in a general set of expectations that the individual carries into new situations, and these generalised expectancies should influence the individual's expectations of mastery in new situations (Sherer & Maddux, 1982: 664).

According to Woodruff and Cashman (1993:423), whilst self-efficacy research originally related self-efficacy to task-specific behaviour, the first to develop a scale to measure the global concept of general self-efficacy were Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs and Rogers (1982:899).

Woodruff and Cashman (1993:424) suggest that the reason Sherer and his colleagues discussed general self-efficacy from the point of view that the construct is based on experiences from a variety of situations, is that it is the assessment of collective experiences that drive the expectations of a person – hence the reason for a generalised approach to self-efficacy development. Bandura (1986:396) discussed the fact that specific task efficacies might be domain-linked, which Woodruff and Cashman (1993:424) refer to as domain-efficacy. Bandura (1997:477) also referred to efficacy being at the collective level which supports the notion of a more generalised approach to the development of self-efficacy.

Based on the theory which suggests that self-efficacy can be measured in a generalised manner, Sherer and Maddux (1982:663) developed a self-efficacy scale to measure general self-efficacy. This scale showed good construct validity, with six personality measures, and good criterion validity with measures of vocational, educational and military career success.

Commenting on the research undertaken by Sherer et al (1982:899), Woodruff and Cashman (1993:424) suggest that to be safe, efficacy should be looked at in three levels, namely task specific, domain, and a general level; but each should be treated separately. For the purposes of this research, however, self-efficacy is treated and measured at a general level, in accordance with research presented above. In this regard, Tipton and Worthington (1984:545-548) developed a generalised self-efficacy questionnaire, which agrees conceptually with the construct of self-efficacy, as described in chapter 3, and is in accord with the reasons given for using a generalised scale. The questionnaire is based on the conceptualisation of self-efficacy as determined by Bandura (1977). According to Tipton and Worthington (1984:545-548)

the questionnaire is similar to that developed by Sherer and Maddux (1982:663) which is also a generalised scale of self-efficacy.

5.2.6.2 *The rationale of the questionnaire*

The rationale of the self-efficacy questionnaire is that it measures an individual's expectations of how that person is likely to perform in a wide variety of situations. The situations are challenging and require of the individual a harnessing of capabilities and skills, to be able to perform successfully. A person who expects to be successful in a variety of situations will score low on the questionnaire, because, in terms of the scoring in this questionnaire, the lower the score the higher the level of self-efficacy. High scores indicate low levels of self-efficacy.

5.2.6.3 *The description of the scale*

The scale is a 27-item measurement. It comprises statements about how one assesses one's self-efficacy in different situations. The scale is used by choosing responses of 1 to 7. 1 = I strongly agree with the statement and 7 = I strongly disagree with the statement. Certain items are reversed. These are items 1, 2, 9, 10, 11, 12, 22, 25 and 26. The total score for the scale is simply the sum of the item scores. It is a unidimensional scale measuring generalised self-efficacy.

5.2.6.4 *Administration of the questionnaire*

The self-efficacy questionnaire can be administered to an individual or to groups. The respondent reads the instructions and then responds to the 27 items, in a manner depending on whether the individual agrees or disagrees with the statement. The corresponding score on the seven point scale is selected and recorded.

5.2.6.5 *Interpretation*

The items are scored from 1 = definitely agree to 7 = definitely disagree with the statement. In this research the lower the score recorded the higher is the level of self-efficacy. The higher the score the lower the level of self-efficacy. Being a unidimensional scale, the overall score reflects the general level of self-efficacy of the respondent (Tipton & Worthington, 1984:545-548).

5.2.6.6 *Reliability and validity of the questionnaire*

There is not much research regarding the reliability and validity of this questionnaire in the literature.

- **Reliability**

Reliability is measured in this research project using the Cronbach's alpha and the item-test correlation. Both of these measurements are recorded in the results chapter 6 of this research.

On the basis that the self-efficacy scale has similar items to those in the Maddux and Sherer generalised self-efficacy scale, the two scales are comparable (Tipton & Worthington, 1984:545-548). The Maddux and Sherer measurement obtained Cronbach alphas of between 0,71 and 0,86 which compare favourably to an alpha value of 0,6 recommended by Nunnally (1978) for scales used in basic research (Sherer & Maddux, 1982 :665). Apart from this, there is no available information regarding the reliability of the questionnaire.

- **Validity**

Criterion validity was recorded by Tipton and Worthington (Breed, 1997:166). The questionnaire was administered to respondents who were divided into two groups,

those with high self-efficacy and those with low self-efficacy. The respondents were instructed to hold a book in their non-dominant hand with their arms parallel to the ground. The hypothesis was that those with high self-efficacy would outlast those with low self-efficacy. The results indicate that those with high self-efficacy did indeed outlast those with low self-efficacy. The results also indicate that self-efficacy can be generalised to a variety of situations.

Construct validity has been achieved through the correlation of the findings of the self-efficacy questionnaire with the sense of coherence and the I-E scale in this research (refer to chapter 6).

5.2.6.7 Motivation for inclusion in the research

For the purposes of this research the self-efficacy questionnaire was used because self-efficacy is a central component of the salutogenic profile as outlined in chapter 3 (Strümpfer, 1990). In this respect Bandura (1977:20) maintains that self-efficacy develops in an environment that is responsive to one's accomplishments and includes productive engagement. The measurement of self-efficacy will reflect the environment in which a person is working through the strength of his/her efficacious beliefs.

On the other hand performance is a function of the level of self-efficacy (Bandura, 1986). Barling and Beattie (1983:41-51) showed that there is a positive correlation between self-efficacy and sales performance. Also Coladarci (1992:323-337) showed that a student in a school with high self-efficacy sets high standards and achieves good results. The use of the self-efficacy questionnaire is important because of the link between self-efficacy and performance (as shown above).

The questionnaire developed by Tipton and Worthington (1984) has sound psychometric properties.

On the basis of the above it is deemed expedient to include the self-efficacy questionnaire in this research.

5.2.7 The Self-Appraisal questionnaire

A self-appraisal questionnaire is used in this research to assess an individual's perceptions of work performance based on behaviour and outcome measurement criteria.

5.2.7.1 The theoretical basis for its development

The questionnaire was developed in conjunction with the mine management, and it contains criteria which management believe are significant in the measurement of performance in the mining industry.

That the choice of measurement criteria are based on a combination of behavioural and outcome criteria is supported by Barrick and Mount (1993:111-118) who maintain that it is not sufficient to concentrate solely on the end results when measuring performance. They suggest that one should also measure the means to that end, and it is important to measure the behavioural as well as the outcome criteria for performance. There are recognised weaknesses that can arise using self-appraisals, such as the leniency effect, and these have been referred to in chapter 4. There are, however, suitable corrective measures that can be put in place to counteract this problem (Fox, Caspy & Reisler, 1994:45-56). The design of the questionnaire has taken account of this and it has ensured a suitable balance between behavioural and outcome criteria.

5.2.7.2 The rationale of the questionnaire

The inclusion of the self-appraisal questionnaire is warranted because in terms of Bandura's (1978:344) social cognitive theory self-assessment of one's abilities to perform a task is an accurate evaluation of one's level of self-efficacy (Levine,

1980:259). High scores on the scale indicate positive perceptions of self-appraisal and work performance. Low scores are an indication of poor perceptions of work performance.

5.2.7.3 *The description of the scale*

The questionnaire is designed to measure ten important criteria, of a behavioural and outcome nature. It was developed with the assistance of mine management and the mine employees. The ten criteria are: safety, production, planning, organisation and control, supervising, standards, technical competence, cost effectiveness, interpersonal skills and work motivation.

Each criterion has a number of sub-items (24 items in total). The questionnaire is measures on a 9-point scale, 1 = very poor, 5 = average and 9 = very high. The questionnaire measures a composite concept of work performance using self-appraisal.

5.2.7.4 *Administration of the questionnaire*

The questionnaire is a self-report instrument. It requires that each respondent reads every item and assigns a score depending on how each individual perceives his/her level of performance in each measurement criteria.

The respondent is required to answer each statement on the 1 to 9 rating scale. The questionnaire is a self-scoring rating scale, and it is scored by adding the total of the scores and calculating the average score for the total responses.

5.2.7.5 *Interpretation*

The total score gives an indication of each individual's rating by him-/herself of his/her performance. High scores indicate positive perceptions of performance and low scores indicate poor perceptions of performance.

It is important to note that, in this instance, a composite score was computed to evaluate overall performance. Although Cascio (1991:68) suggests that a composite score is normally used for output measurements which have an economic value, and that multi measurements are normally used for behavioural criteria. In this instance, because the criteria are a mixture of behavioural and outcome measurements, it was deemed expedient to calculate the scores on a composite basis. Mine management accepted the scores on this basis.

The factor analysis of the questionnaire (refer 6.1.7) indicates that it can be used as a one or two factor measurement. The two factors relate to attitudes to work and work performance respectively.

5.2.7.6 *Reliability and validity of the questionnaire*

- **Reliability**

No previous research has been carried out using the questionnaire and no reliability data are recorded in the literature. Cronbach alpha's and item-test correlations for the use of the questionnaire in this research are recorded in chapter 6.

- **Validity**

The questionnaire was developed using behavioural and outcome criteria that are meaningful in the South African mining industry. Literature was consulted to determine certain critical criterion measurements on the mines. These measurements provide a measure of criterion validity, which is the measurement of performance against accepted mining industry standards.

Construct validity is used to measure the relationship between results obtained in the measuring instrument, and a construct which correlates significantly with performance. The significant construct in the research is self-efficacy. Gist (1987:474) maintains that

there is an important relationship between perceived levels of self-efficacy and the performance of an individual. The higher an individual perceives his/her capabilities to complete a task, the more likely he/she will achieve his/her performance goals. In this research, the relationship between self-appraisal of work performance and self-efficacy has been well researched and meaningful relationships do exist which will be examined in the results (chapter 6). A significant relationship between measures of performance through self-appraisal and self-efficacy is a good indication of the validity of the questionnaire.

A measure of predictive validity of the measuring instrument was obtained by correlating the results of the self-appraisals with hard-data measures on the mine. The hard-data measures were developed and agreed by mine management and the hard-data criteria were converted to 9-point measuring scale (1 = poor, 5 = average and 9 = excellent). Hard-data performance was measured in respect of production (tons hauled, advance/cut, tons blasted, explosives efficiencies), safety (fatalities, reportable injuries, lost time injuries, injury shifts lost), industrial relations (disciplinary actions, discharges), engineering (machine availability – surface and underground) and costs (hauled R/ton, production R/ton). The measuring instruments, developed and agreed by mine management, appear in appendix 3 of this research manuscript.

Spearman rank-order correlation coefficients were computed, comparing the hard-data results with the self-appraisals for the respondents, in the 5 production sections on the mine. A Spearman rank-order correlation coefficient of $r = 1.00$ was achieved which is highly significant ($p < 0,05$). In accordance with the tables presented in Runyon and Haber (1980: 388) for ranked pairs = 5. The following table details the scores converted to stanines for hard data and self-appraisals.

Table 5.3: Hard data and self-appraisal rank orders

Production Sections	Hard Data expressed in Stanines	Rank	Self-appraisal stanines	Rank
South Witbank	7.8	2	7.3	2
Tavistock	6.2	5	6.2	5
Phoenix	7.7	3	7.0	3
ATC	7.5	4	6.9	4
Atcom	8.0	1	7.4	1

This data is an extract from the report presented to mine management on the results of the research conducted in 1994 at the mine, and these indicate a very significant predictive validity when comparing self-appraisals with hard-data results.

5.2.7.7 Motivation for inclusion in the research

For the purposes of this research, a questionnaire was specifically developed for the measurement of performance criteria (as outlined in chapter 4) because it supports the underlying operational assumptions of recognised self-appraisal of performance.

Performance has become an aspect of salutogenic thinking in that perceptions of one's level of performance are an indication of the extent of one's level of self-efficacy (Lane & Herriot, 1990:79).

The self-appraisal questionnaire used on the mine was developed through focus groups and it was vetted by three psychologists in the JCI organisational development department. The stable properties of the questionnaire make its use appropriate for this research.

Based on the above, the choice of the self-appraisal questionnaire is appropriate for this research.

Herewith step 2 of the empirical research has been achieved, namely choosing and motivating a psychometric battery.

5.3 DATA COLLECTION

Each participant attended a group session comprising a maximum of thirty individuals. Each person was seated comfortably at a table which was set up in a U shape so that everyone could see the instructor up front. On the table, before each person was an electronic key pad to record responses to the questions.

The computerised data collection system known as Leaderware (1992) smartstats package was used. A trained psychologist acted as the instructor and operated the system. All seven questionnaires, in English and Afrikaans, were loaded onto the computer.

The psychologist explained how the system worked. The psychologist read out each question as it appeared on the computer console and each person was required to respond accordingly. In addition, each person had a copy of the questionnaire in front of him/her so that he/she could read each question. This ensured that each person fully understood every question. The psychologist clarified whenever it was necessary.

Each session took approximately three and a half hours to complete. The system ensured that each person had to answer each item that appeared on the questionnaires.

Each individual was required to provide biographical information relating to his/her Patterson band, his/her discipline, his/her work station and his/her age. This information was captured electronically through the computerised system. Clear instructions were given to each person as to how this information was to be provided.

Herewith, step 3 of the empirical research has been achieved, namely the method of

data collection.

5.4 STATISTICAL PROCESSING OF THE DATA

The SAS (1985) and the SPSS (1994) statistical packages were used for data analyses. LISREL 8 (linear structural equation modelling (Jöreskog & Sörbom, 1997)) was used for confirmatory factor and path analysis.

The following are the statistical processes used in this research.

5.4.1 Reliability and the factor structure of the measuring instruments

Four of the questionnaires used were developed specifically for this research. These are the climate, supervisory support, team work and self-appraisal questionnaires. Because reliability data could not be provided in this chapter for these instruments, the data will be recorded in chapter 6, along with the reliability statistics for the three salutogenic questionnaires.

The reliability of the instruments is important, because the instruments provide the foundation upon which the statistical results of the research are based. The data for each of the seven measuring instruments are analysed separately, in terms of item-test reliabilities and Cronbach alphas. The item-test reliability indicates whether the items have been appropriately selected for the questionnaire by correlating these with overall test score (Nunnally, 1978:261). The Cronbach's alpha measures the internal consistency of responses to a questionnaire (Cronbach, 1951:297) and is a recognised test of reliability. Nunnally (1978:261) suggests that a Cronbach alpha of between 0.5 and 0.6 is satisfactory for research purposes. Watkins and Mauer (1994:80) suggest that items with item-test correlations of less than 0.2 should be excluded from a questionnaire. These figures will act as guideline in the interpretation of the results.

The factor structure (refer 5.4.3) of each measuring instrument will be analysed to assist with the interpretation of the results. A forced single factor analysis will be conducted on all of the instruments to determine whether the items load onto the factor and fairly represent the concept being measured. The rotated two factor structure will also be assessed. The questionnaires representing the team building profile (climate, supervisory support and team work) have been constructed on pre-established dimensions. These dimensions will be tested through factor analysis and will be reported upon. The reliabilities and factor structures of the three salutogenic questionnaires and the self-appraisal questionnaire will also be reported upon (chapter 6).

5.4.2 Intercorrelations

The strength of relationships between the variables (dimensions) and constructs will be measured, using the Pearson-productmoment correlation coefficients (Howell, 1989:100). The size of the correlation and the significance level (at the minimum of $p < 0,5$ level) are dependant upon the number of pairs of data being measured. The larger the number of pairs, the lower the correlation needs to be for the correlation to be significant. Correlation data and significance levels (Kerlinger, 1986:188) are used to ascertain the relationships between the dimensions within each of the profiles in this research and to establish the existence of the profiles.

5.4.3 Exploratory factor analysis

The research measures 28 observed variables through the various questionnaires. As a basis for establishing the performance model, in this research, the data representing the 28 variables will be factor analysed. Factor analysis is well described by Kerlinger (1986:569). He maintains that factor analysis reduces the multiplicity of tests and measures to greater simplicity. It suggests which tests and which measures belong together, which measure the same thing and the extent to which they do so. It reduces the number of variables with which a researcher must cope to a manageable number.

It helps the researcher locate and identify entities or fundamental properties underlying tests or measures. The purpose of factor analysis in this research is to determine the factor structures of each questionnaire (refer 5.4.1), and to ascertain which of the observed variables are grouped together into latent variables as a basis for the five factor structure of the performance model.

Kerlinger (1986:572) explains factor analysis by maintaining that tests can be either factorially pure (if the test only measures one factor), or factorially complex (if the test contains more than one factor). One of the outcomes of a factor analysis is called a factor matrix which is a table of coefficients that expresses the relationship between tests and the underlying factors. The entries on the table are called factor loadings. These loadings range from -1.00 through to + 1.00. They are interpreted in a similar manner to correlation coefficients. They express the correlation between the tests and the factors (Kerlinger, 1986:571-572). The matrix from Kerlinger (1986:572) in table 5.4 indicates clearly how factor loadings are interpreted.

Table 5.4: Factor matrix of data

Tests	A	B	h^2
V	0.83	0.01	0.70
R	0.79	0.10	0.63
S	0.70	0.10	0.50
N	0.10	0.70	0.50
AS	0.10	0.79	0.63
AT	0.01	0.83	0.70

Test V is highly loaded on factor A but not at all on B. Also V, R, S are loaded on A but not on B, and test N, As, AT are loaded on B but not on A. The h^2 are the communalities – the sum of the squares of the factor loadings of a test or variable. The communality for test R is $(0.79)^2 + (0.1)^2 = 0.63$. The communality of a variable in the common factor variance is the amount of variance in the factor explained by the

variable or test.

5.4.3.1 *The principle components factor method*

The most widely used factor analysis method is the principal components factor method. This is an objective method of determining clusters, scientifically. It determines which tests hang together in clusters and thus fairly represent a factor(s). The problem in any factor analysis is to determine how many factors there are, what tests are loaded on the factors and the magnitude of the test loadings (Kerlinger, 1986:576).

In order to obtain the factor loadings, the data can either be rotated or unrotated. In most cases, in order to discover the best configurations, reference axes are rotated (Kerlinger 1986:579). This is to obtain the unique and best positions of the axes or the best ways to view the variable in n-dimensional space. The SAS (1985) and SPSS (1994) statistical programmes are used in this research to obtain factor structures and the principal components orthogonal transformation rotated factor pattern. According to Thurstone (Kerlinger, 1986:581) in order to guide rotation, five principles or rules of simple structure should apply:

- Each row of the factor matrix should have at least one loading close to zero.
- For each column in the factor matrix there should be at least as many variables with zero loadings as there are factors.
- For every pair of factors (column) there should be several variables with loadings in one factor (column) but not in the other.
- Where there are four or more factors, a large portion of the variables should have negligible (close to zero) loadings on any pair of factors.
- For every pair of factors (columns) of the factor matrix there should be only a small number of variables with appreciable (non zero) loadings in both columns.

5.4.3.2 *The orthogonal transformation matrix rotated factor pattern method used in this research*

It should be noted that in developing the factor matrix in this research the following steps are incorporated:

- Use is made of the standardised correlation matrix.
- The procedure makes use of the principal components and orthogonal varimax rotation methods.
- Use is made of Kaiser's measure of sampling adequacy, to test for the suitability of the data (Dziuban & Shirkey, 1974:358).
- The procedure makes use of the Kaiser criterion and the Scree plot (Cattell, 1966) to determine the number of factors.

The retention of the factors is based on certain rule of thumb principles, used by researchers. For principal components analysis, it has been argued that the Kaiser criterion of retaining factors, with eigenvalues greater than one, appears to be the most appropriate (Ford, MacCallum & Tait, 1986:294). An alternative criterion that can be adopted is the Scree Plot. With the Scree Plot the pattern of eigenvalues is examined for breaks or discontinuities. In this research use is made of the technique of retaining factors with eigenvalues greater than one or very near to one (Kim & Mueller, 1978) and through observation of the Scree Plot (Cattell, 1966). Another commonly used rule for specifying factors is that only variables with loadings greater than 0.40 on a factor should be considered significant and used in defining a factor (Comrey, 1978:648). In this research, all factor variable loadings with respect to the performance model are greater than 0.40. Furthermore, the Kaiser measurement of sampling adequacy (M.S.A.) is 0.91 which indicates that the data is highly reliable. Research conducted by Ford, MacCallum and Tait (1986:299) into which methods are most commonly used in factor analysis, found that 23 or 36 studies used the principal components method, and 16 of these used the Kaiser orthogonal varimax rotation. Ford et al (1986:306) reported that in various studies between 1974-1984, the following were found to be the most

common methods for determining factors:

- The principal components method;
- Eigenvalues greater than one;
- Orthogonal varimax rotation;
- Factor loadings greater than 0.40.

The above have been used, and they are regarded as valid statistical procedures, based on the research of Ford et al (1986:306).

5.4.3.3 *Validation of measuring instruments using factor analysis*

Factor analysis is a powerful and indispensable method for use in construct validation.

According to Mouton and Marais (1994:69), when measuring scales employing multiple indicators are used, factor analysis is often incorporated to assist in determining the construct validity of the theoretical concepts. Factor analysis has been employed to determine the factor structure of the measuring instruments, and the factor structure of the performance model in this research, thereby verifying the construct validity of both the measuring instruments and the performance model.

5.4.4 **Confirmatory factor analysis**

Exploratory factor analysis has limited value for the specification and testing of an hypothesis relating to model structure. The type of factor model that allows the researcher to specify hypotheses, and that provides information to determine whether the observed data confirms the hypothesised model structure, is called a confirmatory factor analysis model. LISREL is used to specify and analyse such models (Hughes, Price & Marrs, 1986:132), and it is used in this research to confirm the performance model.

Confirmatory factor analysis is more powerful than the exploratory strategies for assessing factor structures (Ford et al, 1986:310). In confirmatory factor analysis a researcher can make firm predictions based on theory and research. Research conducted by Harvey, Billings and Nilan (1985:461) demonstrates the power of confirmatory over exploratory approaches. Confirmatory factor analysis tests how theoretical constructs fit reality and the empirical data.

The confirmatory factor analysis in this research makes use of the LISREL algorithm (LISREL 8.14, 1997) to measure the fit of the hypothetical model to the data (goodness-of-fit statistics) and to measure and test specific elements of the model, such as structural parameters (Hughes, Price & Marrs, 1986:130).

In the most general form of the LISREL model, the researcher postulates a causal structure among a set of unobservable constructs (latent variables). These latent variables are empirical measures of the constructs. Each latent variable is measured by a set of observed variables. Observed variables are measured with error (Hughes et al, 1986:130).

The latent variables specify the hypothetical causal structure among the unobserved theoretical constructs. The theoretical model specifies how the latent variables are measured in terms of the observed variables, and it represents the corresponding rules by which the unobservable constructs (latent variables) are related to the observed variables (Hughes et al, 1986:130). The coefficients, in the structural equation model in LISREL, represent theoretical cause and effect relationships among the unobservable constructs (latent variables), and are the parameters of interest to the researcher (parameter estimates).

Validity of the confirmatory factor analysis model

There are measures that are used to assess whether there is a good fit between theory construction and the empirical situation. These are known as goodness-of-fit statistics

(Browne & Cudek, 1993:31) and are described below:

- The Chi Squared Statistic (χ^2) is a commonly used goodness-of-fit statistic. However according to Hughes et al (1986:141) the χ^2 is a valid test statistic only if the analysis is based on the covariance matrix. According to him the covariance matrix is mainly used when comparing structural parameters across different populations or across time for the same populations. Neither of these methods were used in this research. This research was conducted on one population group at one point in time. Therefore, the χ^2 isn't appropriate for measures of goodness-of-fit in this research (Hughes et al, 1986).

MacCallum (1998:23) maintains that the " χ^2 is highly influenced by sample size, and it tests a nul-hypothesis of no empirical interest (perfect fit on the population)". According to him, no weight should be given to this test in model evaluation, as it is viewed by methodologists as being of little value.

- The goodness-of-fit-index (G.F.I.) in which a good fit is an index >0.9 .
- The root mean square of approximation (RMSEA) where a good fit is for residuals <0.08 . This is regarded by MacCallum (1998:22) as the best index that is currently available.
- The Bentler-Bonnet non-normal fit index (BBNNFI) where a good model fit is an index >0.9 .
- The Comparative fit index (CFI) where a good fit is an index >0.9 .

All of the above with the exception of the Chi-squared were used as goodness-of-fit measurements in this research.

Herewith step 4 of the empirical research has been concluded, namely a description of the statistical processing of the data.

5.5 FORMULATION OF HYPOTHESES

Based on the integratation of the existing relevant literature (see p 193) and explained in figure (p 198), the following hypotheses (according to guidelines by McGuigan (1968:48)) are formulated with a view to fulfilling the objectives of the empirical research.

- H1 - there are significant relationships between the interactive and directive dimensions of team building.
- H2 - there are significant relationships between the salutogenic concepts.
- H3 - there are significant relationships between the salutogenic concepts and work performance.
- H4 - there are significant relationships between team building, salutogenesis and work performance.
- H5 - there is good fit between the theoretical structure of the performance model and the empirical data.
- H6 - there are significant causal relationships between the interactive and directive dimensions of team building, on the one hand; and salutogenesis and work performance, on the other hand.
- H7 - An individual's salutogenic orientations are related to his/her orientations as a team member.

Herewith, step 5 of the empirical research is achieved; namely the formulation of hypotheses.

5.6 CHAPTER SUMMARY

This chapter discussed the first five steps of the empirical research. This included the determination and description of the research sample; the choice, administration, scoring and motivation of the psychometric battery; the method of data collection used in this research; the statistical processing of the data; and the formulation of the hypotheses for the research.

CHAPTER 6

RESULTS

The aim of this chapter is to present the results of the research.

To meet this aim the following method will be used. Firstly, the reliability of the respective measuring instruments will be discussed and the factor structure of each will be reviewed. Secondly, the descriptive statistics will be discussed, and the intercorrelations based on these statistics will be interpreted. Thirdly, the factor structure of the performance model will be presented and discussed through exploratory factor analysis, and the model representing the relationships between the team building, the salutogenic and the work performance profiles will be confirmed through confirmatory factor analysis. Fourthly, the theoretical and the empirical profiles will be integrated. The chapter concludes with a summary.

6.1 THE RELIABILITY AND FACTOR STRUCTURE OF THE MEASURING INSTRUMENTS

The tables reflecting the reliability of the measuring instruments are presented in appendix 1. The main reliability findings will be presented in this section, together with the factor structure of each measuring instrument. The tables in this section provide a one and rotated two factor analysis of the measuring instruments. Each table will be interpreted with regard to its use in the empirical research. Where appropriate, other factor analysis will be presented and explained with reference to the interpretation of the measuring instruments.

6.1.1 The Climate questionnaire

6.1.1.1 Reliability

The Cronbach's alpha of the climate questionnaire is 0.86 which indicates that the questionnaire is a reliable measuring instrument for the purposes of this research. Only three items, namely 3.9 and 23 should be re-worded. Deleting these items does not make any significant difference to the alpha coefficient.

6.1.1.2 Factor analysis

The results of the one factor and the two factor analysis (rotated factor structure) of the climate questionnaire are reported in table 6.1.

Table 6.1: Factor matrix of the items of the climate questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
1	0.51	0.40	
2	0.51	0.40	
3			
5	0.52	0.52	
7	0.49	0.47	
8	0.44	0.52	
9			
11	0.51	0.45	
12	-0.40	-0.31	
14	0.61	0.44	
16	0.45	0.50	

Item	One factor	Two factors	
		Factor 1	Factor 2
17	0.46	0.56	
18	0.40	0.64	
19	0.56	0.48	
20	0.54	0.69	
21	0.65	0.57	
22	0.48	0.48	
25	0.41	0.59	
26	0.24	-0.59	
27	0.48	-0.40	
28	0.60	0.45	
30	0.48	0.40	
31	0.46	0.47	
34	0.56	0.65	
35	0.47	0.33	
37	0.45	0.40	
39	0.45	0.41	
42	0.50	0.47	
43	0.61	0.58	
44	0.33	0.37	
45	0.58	0.61	
46	0.44	0.45	
48	0.50	0.69	
49	0.52	0.50	
53	0.33	0.32	
56	0.47	0.39	
59	0.45	0.53	
60	0.42	0.47	
62	0.43	0.67	
67	0.57	0.58	
69	-0.62	-0.58	
4	0.42		0.44
6	0.48		0.36
10	0.58		0.61
13	-0.51		-0.54
15	0.47		0.35

Item	One factor	Two factors	
		Factor 1	Factor 2
23	0.18		0.40
24	0.36		0.63
29	0.30		0.48
32	0.41		0.44
33	0.44		0.35
36	0.35		0.33
38	0.44		0.60
40	-0.34		-0.25
41	-0.52		-0.47
47	0.40		0.37
50	0.43		0.44
51	0.19		0.26
52	0.60		0.65
54	-0.33		-0.37
55	-0.59		-0.45
57	0.36		0.52
58	0.50		0.65
61	0.43		0.43
63	0.41		0.68
64	0.38		0.42
65	0.18		0.20
66	0.41		0.49
68	-0.22		-0.28
70	0.44		0.46

- **Interpretation of the data from the one and two factor analysis**

In the one factor analysis, all of the items with the exception of items 3 and 9 load onto this factor. Of the remaining items the following thirteen are below the 0.40 stipulated as the minimum cut-off for a factor loading (26, 23, 53, 24, 29, 26, 40, 51, 54, 57, 64, 65 and 68). Thus fifteen items could be eliminated. In terms of the factor structure, the climate questionnaire could be regarded as a one factor measurement bearing in mind

that a total of fifty five questions are very suitable, and load on one factor. This factor is a combination of directive and interactive properties. On the basis that a large number of items load onto this factor, it can be affirmed that the items measure a specific concept, namely organisational climate.

The two factor solution reveals that the directive items are mainly loaded on the first factor and these are items 1, 2, 5, 7, 8, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 25, 26, 27, 28, 30, 31, 34, 35, 37, 39, 42, 43, 44, 45, 46, 48, 49, 53, 56, 59, 60, 62, 67 and 69. The second factor relates mainly to the interactive items in the questionnaire. These items are 4, 6, 10, 13, 15, 23, 24, 29, 32, 33, 36, 38, 40, 41, 47, 50, 51, 52, 54, 55, 57, 58, 61, 63, 64, 65, 66, 68 and 70. While the two factor solution has merit in the questionnaire, it was not used in the final measurements.

Instead 14 dimensions, which provide an understanding of the directive and the interactive dimensions of climate, were established and used (refer 5.2.1).

- **Factor analysis of the 14 dimensions in the questionnaire**

For the purposes of the research, the directive and interactive dimensions were determined using facet design (Shye, 1978), and were based on the requirements of mine management. The 14 dimensions in the questionnaire, appear to differentiate sufficiently between the directive and the interactive dimensions. Further they have been subjected to factor analysis.

In order to establish the directive and interactive variables, a principal components varimax rotation factor analysis was carried out, using the 14 dimensions and a two factor model was achieved, in table 6.2.

Table 6.2: Climate questionnaire - 14 dimensions rotated factor matrix

Dimension	Factor 1	Factor 2
Decision Making	0.69	
Reward	0.77	
Contribution to profits	0.66	
Conflict Handling	0.58	
Communication	0.63	
Team building	0.57	
Responsibility	0.70	
Job tension	-0.58	
Organisation structure		0.60
Role clarity		0.72
Job satisfaction		0.75
Standards		0.78
Supervisor effectiveness		0.74
Propensity to leave		-0.53

It is clear that factor 1 is primarily the interactive dimensions of climate, although decision making and responsibility could be either directive or interactive. Job tension is the result of the interactive dimension. Factor 2 is primarily the directive dimensions. Job satisfaction and propensity to leave are the result of the directive dimensions. The climate questionnaire clearly contains directive and interactive dimensions in a 2 factor structure, and the choice of the 14 dimensions to describe these is justified.

COMMENT

For the purposes of this research the climate questionnaire measures both of the directive and interactive properties, and the combination of the items into the 14 dimensions is deemed to be the most suitable combination. The two factor solution can be used, but only after careful identification of exactly which items constitute either directive or interactive dimensions.

6.1.2 The Supervisory Support questionnaire

6.1.2.1 Reliability

The selection of items for the supervisory support questionnaire is good and the Cronbach's alpha of 0.96 indicates that the internal consistency of the questionnaire is very good, rendering it suitable for this research.

6.1.2.2 Factor analysis

The results of the one factor and the two factor (rotated factor structure) analysis of the supervisory support questionnaire are reported in table 6.3.

Table 6.3: Factor matrix of the items of the supervisory support questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
1	0.55	0.62	
2	0.71	0.81	
3	0.59	0.50	
4	0.69	0.59	
5	0.83	0.69	
7	0.82	0.71	
8	0.85	0.71	
9	0.71	0.62	
10	0.76	0.71	
11	0.79	0.61	
12	0.81	0.58	
13	0.77	0.60	
14	0.80	0.69	

Item	One factor	Two factors	
		Factor 1	Factor 2
15	0.82	0.72	
17	0.86	0.65	
18	0.77		0.61
19	0.65		0.84
20	0.67		0.67
21	0.68		0.77
22	0.77		0.58
6	0.75		0.57
16	0.78		0.59

- **Interpretation of the data from the one and two factor analysis**

In the one factor analysis, all the items load significantly into the one factor. Since all the items are reflected on this factor, it can be affirmed that these items measure a specific concept, namely supervisory support.

In the two factor analysis factor 1 appears to measure issues related to assistance in the achievement of objectives. The relevant items are 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 17. Factor 2 appears to measure assistance in general such as care shown by the supervisor and help with scheduling, feedback and skills. These items are 6, 16, 18, 19, 20, 21 and 22.

In the opinion of the researcher, a one factor measurement could suffice, but it has been regarded as expedient to maintain the four dimensional approach of House (1981), because the 4 dimensions of information support, instrumental support, appraisal support and emotional support provide greater meaning to the interpretation of the results. House (1981) suggests that the four types of support constitute the minimum number which adequately reflect the complexity of social support.

- **Factor analysis of the 4 dimensions in the questionnaire**

The four components are founded on facet theory (Shye, 1978), and assist with the analysis of the data. Whilst the variables and items are both interactive and directive in nature, a two factor principal components varimax rotation did yield a two factor structure, which can be classified directive and interactive. The researcher, however, does not believe that a fine distinction between the two in this questionnaire is particularly important. Nevertheless, the principal components varimax rotation yielded the following:

Table 6.4: The supervisory support questionnaire - 4 dimensions rotated factor matrix

Dimension	Factor 1	Factor 2
Information support	0.86	
Instrumental support	0.81	
Emotional support	0.84	
Appraisal support		0.88

Factor 1 could be considered as comprising interactive dimensions, and Factor 2 could be a directive dimension (guiding and directing subordinates in the achievement of objectives). However, the most appropriate understanding of these measures of supervisory support is to view the dimensions as a mixture of interactive and directive variables, rather than being concerned with trying to make an absolute distinction between the two.

COMMENT

Supervisory support is an important aspect of the team building profile, and it is treated as a separate entity in the factor structure of the performance model in this research. The items are a combination of directive and interactive dimensions and although

House's (1981) 4 component structure has been used in this research, the questionnaire can be used as a unidimensional instrument measuring a common factor, supervisory support.

6.1.3 The Team Work questionnaire

6.1.3.1 Reliability

The team work questionnaire is a reliable instrument with an overall Cronbach's alpha of 0.83. The items for this questionnaire are sound with the exception of items 4 and 14. This needs to be taken into account when using the questionnaire. This is a reliable questionnaire for measuring team work in this research.

6.1.3.2 Factor analysis

The results of the one factor and two factor (rotated factor structure) analysis of the team work questionnaire are shown in table 6.5.

Table 6.5: Factor matrix of the items of the team work questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
1	0.40	0.31	
2	0.65	0.50	
4			
7	0.67	0.52	
10	0.64	0.65	
11	0.62	0.48	
12	0.67	0.68	
13	0.68	0.58	
14	0.22	0.21	
15	0.58	0.65	
16	0.53	0.75	

Item	One factor	Two factors	
		Factor 1	Factor 2
17	0.55	0.71	
3	0.69		0.63
5	0.59		0.61
6	0.62		0.63
8	0.50		0.41
9	0.70		0.65

- **Interpretation of the data from the one and two factor analysis**

All the items, with the exception of item 4, load onto the general factor team work. This item is clearly stated, "employees are told where the mine is going and what the plans for the future are". The reason for a low loading may be that as many of the respondents feel uncertain as certain about future plans. Caution should be exercised before excluding this item. Item 14 is another item that should be treated with caution. Since all of the remaining items load well onto the factor, it can be reasonably assumed that these items measure a specific concept, namely team work.

The two factor analysis appears to make a distinction between team work in general (factor 1) and feedback information that an employee receives about the work situation (factor 2). Items 3, 5, 6, 8, and 9 specifically reflect the feedback issues.

For the purposes of this research, it was deemed expedient to make use of 4 dimensions which clearly identify aspects of team work as revealed by theoreticians in chapter 2.

- **Factor analysis of the 4 dimensions in the questionnaire**

The questionnaire was developed for the purposes of measuring team work in the organisation. Based on facet theory (Shye, 1978), 4 dimensions were selected, using

the items that were developed to measure team work on the mine. It would appear upon close examination of the dimensions that, in this instance, three are more closely allied to interactive issues (factor 1), whereas only one appears to be more directive (factor 2), as reflected in table 6.6. However, the questionnaire should be regarded as a unidimensional questionnaire for the purposes of this survey, measuring the general concept of team work. The 4 dimensions are a refinement within the team work concept. Using principal components factor analysis the following was obtained in table 6.6.

Table 6.6: The team work questionnaire - 4 dimensions rotated factor matrix

Dimensions	Factor 1	Factor 2
Teamwork in teams	0.87	
Co-operation between teams	0.84	
Feedback and recognition	0.67	
Sharing of information		0.95

The items in the questionnaire are a mixture of interactive and directive issues, with a greater emphasis on the interactives. The questionnaire can be used as comprising the 4 dimensions (table 6.6), or it can be used as a unidimensional scale measuring a common factor, team work.

- **Overall comment on the interactive and directive dimensions of team building**

The climate questionnaire is a bi-dimensional measurement, based on a principal components two factor structure. These two factors comprise interactive and directive variables. The supervisory support questionnaire is more unidimensional, based on a one-factor principal components factor structure. It's items can nevertheless be differentiated into directive and interactive variables, although the distinction is not

always clear cut. The team work questionnaire is also more strongly inclined towards a unidimensional measurement, based on a one factor principal components factor structure. The team work questionnaire is more oriented towards the interactive variables.

For the purposes of the analysis of the dimensions that make up the team building profile, the climate questionnaire includes interactive and directive variables. The supervisory support and team work questionnaires also include both directive and interactive variables. It is not easy, however, to classify these in the two questionnaires. Notwithstanding this, the team work questionnaire appears to be more focused on the measurement of interactives, whereas the supervisory support questionnaire appears to contain a mixture of both directive and interactive variables.

It should therefore be noted that the questionnaires used in the team building profile have directive and interactive dimensions. These dimensions which were established by psychologists for use on the mine are regarded as suitable in this research project.

6.1.4 The Sense of Coherence questionnaire

6.1.4.1 Reliability

The sense of coherence questionnaire is a reliable measuring instrument with a Cronbach's alpha of 0.85. The instrument is suitable for the measurement of a sense of coherence in this research. Only two items, 3 and 5 recorded item-test correlations less than 0.2.

6.1.4.2 Factor analysis

The results of the one factor and two factor (rotated factor structure) analysis of the questionnaire are reflected in table 6.7.

Table 6.7: Factor matrix of the items of the sense of coherence questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
1	0.35	0.38	
4	0.44	0.49	
5	0.17	0.22	
6	0.24	0.27	
7	0.58	0.65	
11	0.46	0.61	
13	0.45	0.58	
14	0.56	0.70	
16	0.46	0.56	
20	0.54	0.53	
22	0.61	0.52	
23	0.30	0.35	
25	0.42	0.30	
27	0.24	0.51	
28	0.59		0.50
29	0.55		0.60
2	0.34		0.41
3	0.23		0.22
8	0.52		0.59
9	0.33		0.30
10	0.33		0.56
12	0.51		0.45
15	0.54		0.55
17	0.33		0.62
18	0.43		0.44
19	0.70		0.49
24	0.50		0.50
26	0.36		0.56
21	0.47		0.51

- **Interpretation of data from the one and two factor analysis**

In the one factor structure there are eighteen items which are totally acceptable in terms of the criteria for acceptance of factor loadings. These items are 4, 7, 11, 13, 14, 16, 20, 22, 25, 28, 29, 8, 12, 15, 18, 19, 24 and 21. The other items have loadings between 0.3 and 0.4 and are marginally acceptable. Two items 5 and 27 have loadings of less than 0.3 and ought to be rejected. Since the majority of the items load on the factor, it can be reasonably assumed that they measure a common concept, namely sense of coherence.

In the two factor structure it appears that two reasonably distinct factors emerge. The composition of these factors are similar to the findings of Viviers (1996:196). Factor 1 is a combination of the meaningfulness and the manageability sub-scales and comprise items 1, 4, 5, 6, 7, 11, 13, 14, 16, 20, 22, 23, 25 and 27. Items 1, and 5 are comprehensibility items. Factor 2 corresponds primarily to Antonovsky's comprehensibility sub-scale although items 8 and 28 relate to meaningfulness and items 9 and 11 and 18 relate to manageability. The common factor items for factor 2 are 2, 3, 8, 9, 10, 12, 15, 17, 18, 19, 24, 26, 21, 28 and 29. If a two factor structure is used then twenty two of the items can be used.

- **Interpretation of data from a three factor analysis**

It should be noted that the researcher has made use of the three components of sense of coherence, namely comprehensibility, manageability and meaningfulness. Notwithstanding the caution by Antonovsky (1993) not to use the three components, the researcher has provided the three component scores together with the overall sense of coherence scores in the analysis of the intercorrelations. The three component scores factored out well in the inferential statistics (refer 6.3). The researcher is satisfied with the results obtained from the use of the three components.

Table 6.8 reflects the results of a three factor analysis.

**Table 6.8: Factor matrix of the items of the sense of coherence questionnaire
(three factors)**

Item	Factor1	Factor2	Factor3
14	0.70		
7	0.66		
11	0.62		
13	0.62		
22	0.57		
16	0.53		
27	0.52		
4	0.49		
19	0.47		
20	0.45		
1	0.32		
23	0.29		
8		0.63	
17		0.60	
15		0.58	
29		0.57	
10		0.56	
26		0.52	
21		0.45	
28		0.46	
12		0.45	
18		0.45	
2		0.43	
3		0.28	
5			0.72
6			0.68
24			0.48
9			0.40
25			0.40

The three factor analysis supports the two factor structure, in that the components of meaningfulness and manageability comprise the first factor, and comprehensibility is the prime component of the second factor. The third factor is a combination of comprehension and manageability.

Factor 1 items are 14, 7, 11, 13, 22, 16, 27, 4, 19, 1 and 23. All comprise meaningfulness and manageability, except items 19 and 1 which are comprehensibility. Factor two items are 8, 17, 15, 29, 10, 26, 21, 28, 12, 18, 2 and 3. All consist of comprehensibility except items 8 and 28 which are meaningfulness and items 2, 18 and 29 which are manageability. Items 5, 6, 24, 9, and 25 comprise factor 3 made up of comprehensibility and manageability. If the three factor structure is used only four items need to be eliminated. It is interesting that meaningfulness is significant in the first factor. This supports Antonovsky's contention (Antonovsky, 1987:22) that meaningfulness is the most crucial component of the three. It is further interesting that the three factor structure does not match Antonovsky's three components.

The questionnaire can be used as a one factor measurement of sense of coherence or with the three components described by Antonovsky (1987).

6.1.5 The I-E Locus of Control questionnaire

6.1.5.1 Reliability

The Cronbach's alpha of the I-E locus of control questionnaire is 0.65 which is in line with what Rotter (1990:491) reports for a generalised measurement of I-E locus of control. The following items have low correlations with the test score and should be closely monitored when using the scale (items: 7, 20 and 29). The questionnaire is suitable for use in this research in line with its structural stability (refer 5.2.5.6).

6.1.5.2 Factor analysis

The results of the one factor and two factor (rotated factor structure) analysis of the I-E locus of control questionnaire are reported in table 6.9.

Table 6.9: Factor matrix of the items of the I-E locus of control questionnaire

Item	One factor	One factors	
		Factor 1	Factor 2
13	0.44	0.58	
10	0.32	0.53	
11	0.50	0.46	
9	0.32	0.43	
23	0.41	0.37	
25	0.36	0.31	
26	0.39	0.31	
17	0.40	0.29	
18	0.30	0.28	
6	0.18	0.27	
2	0.22	0.18	
20			
12	0.39		0.56
22	0.31		0.50
16	0.56		0.50
3	0.25		0.49
4	0.36		0.43
15	0.46		0.38
28	0.43		0.37
1	0.12		0.37
5	0.47		0.35
21	0.44		0.35
7	0.14		0.14

- **Interpretation of the data from the one and two factor analysis**

The factor loadings in the one factor analysis are moderately low but consistent with research conducted by Rotter (1966:1-28). Items which could be excluded are 1, 2, 6, 7 and 20. Based on previous research carried out by Rotter (1966:1-28) it is reasonable to accept that a one factor solution is acceptable. The items, with high loadings on the one factor solution, have to do with a positive approach to planning, deciding and taking action (items 13, 10, 11 and 9), all of which contribute to an individual's high performance. This has also influenced the researcher to choose the one factor solution for measurement.

Item 13 When I make plans I can make them work.

Item 10 In the case of a well prepared student there is rarely an unfair test.

Item 11 Becoming a success is a matter of hard work.

Item 9 Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

A two factor solution does not add any additional meaning to the measurement, although there is a difference in emphasis between the two factors which ought to be noted. Factor 1 comprises items 13, 10, 11, 9, 23, 25, 26, 17, 18, 6 and 2. The meaning brought out here is that "if a person takes appropriate action through well considered planning, he/she is able to take control of his/her life". The emphasis in factor 2 is a different. "A person should not blame his/her environment if things go wrong. A person can influence the happenings in his/her environment if he/she is prepared to put in the effort". The items comprising this factor are 12, 22, 16, 3, 4, 15, 28, 1, 5, 21 and 7.

COMMENT

The I-E locus of control questionnaire is a reliable and stable instrument for use in this research and it is used as a one factor solution.

6.1.6 The Self-Efficacy questionnaire

6.1.6.1 Reliability

The Cronbach's alpha of the self-efficacy questionnaire is 0.78 which indicates a high level of internal consistency and reliability. The items are reliable with the exception of items 1, 25 and 26. This should be taken into account when making use of the questionnaire. The questionnaire is suitable for use in this research.

6.1.6.2 Factor analysis

The results of the one factor and the two factor (rotated factor structure) analysis of the self-efficacy questionnaire are reported in table 6.10.

Table 6.10: Factor matrix of the items of the self-efficacy questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
20	0.70	0.71	
15	0.70	0.71	
18	0.68	0.69	
21	0.69	0.68	
14	0.66	0.67	
19	0.66	0.67	
8	0.66	0.65	
5	0.64	0.63	
6	0.60	0.60	
17	0.60	0.59	
7	0.52	0.55	
24	0.56	0.54	
27	0.52	0.53	
23	0.46	0.45	
4	0.45	0.44	
3	0.44	0.43	

Item	One factor	Two factors	
		Factor 1	Factor 2
16	0.25	0.29	0.63
13	0.26	0.27	0.60
10	0.26		0.53
11	0.31		0.52
12	0.22		0.47
25	0.11		0.45
9			0.44
22	0.26		0.43
26	0.15		0.42
1			
2	0.28		

- **Interpretation of data from the one and two factor analysis**

The high loading items on the one factor solution have to do with self-determination, and a drive by an individual to get things achieved. The following are items which present this view:

Item 20 If I don't succeed I will try again.

Item 15 Nothing is impossible if I put my mind to it.

Item 18 If a person believes in him-herself he can make it in this world.

Item 21 When I have difficulty getting what I want I try harder.

Since the majority of the items load on this factor, it can be reasonably assumed that the items measure a specific concept, namely self-efficacy.

On this basis, it would seem appropriate to use the one factor solution since the focus of the research is on performance of an optimal functioning person.

The two factor solution identifies two distinct aspects of self-efficacy. The first factor deals with self-determination and focuses on success through effort. These are items 20, 15, 18, 21, 14, 19, 8, 5, 6, 17, 7, 24, 27, 23, 4, 3, 16 and 13. However the second factor has to do with an individual handling his/her doubts and fears and frustrations as indicated in the following items:

Item 10 I would rather not try something that I am not good at.

Item 11 I have more fears than most people.

Item 12 I find it difficult to take risks.

Item 25 I become frustrated when I experience discomfort.

Item 9 Some things just don't seem the effort.

The other items under this category are 22, 26, 1 and 2.

In line with the focus of this research, which concentrates on the performance of an optimal functioning person, it is inappropriate to concentrate on and measure specific issues which reflect doubts and inadequacies of an individual. For this reason the two factor approach has not been considered. Instead the researcher has decided to use the single factor measurement, which is also in line with the theorists who maintain that self-efficacy can be measured as a generalised concept (Woodruff & Cashman, 1993:423).

6.1.7 The Self-Appraisal questionnaire

6.1.7.1 Reliability

The Cronbach's alpha of the self-appraisal questionnaire is 0.94 which is very good. The items are reliable and the questionnaire is suitable for use in this research.

6.1.7.2 Factor analysis

The results of the one factor and the two factor (rotated factor structure) analysis of the

self-appraisal questionnaire are reported in table 6.11.

Table 6.11: Factor matrix of the items of the self-appraisal questionnaire

Item	One factor	Two factors	
		Factor 1	Factor 2
9.1	0.72	0.84	
9.2	0.74	0.83	
10.2	0.75	0.76	
10.1	0.76	0.72	
4.2	0.68	0.70	
7.3	0.79	0.67	
10.3	0.64	0.66	
9.3	0.68	0.60	
7.1	0.77	0.59	
7.2	0.77	0.58	
4.1	0.67	0.51	
5.2	0.71	0.50	
1.1	0.52	0.41	
6.1	0.78		0.76
2.1	0.75		0.76
2.2	0.78		0.70
5.1	0.76		0.70
6.2	0.80		0.68
8.1	0.79		0.65
8.2	0.81		0.63
3.1	0.74		0.62
3.2	0.74		0.56
1.2	0.44		0.51
1.3	0.23		0.43

- **Interpretation of data from the one and two factor analysis**

All the items, with the exception of item 1.3, load satisfactorily onto the factor. It can

therefore be reasonably assumed that the items measure a specific concept, namely self-appraisal of performance. For present purposes, a one factor structure has been adopted with the use of the self-appraisal questionnaire and this is justified.

The two factor structure revealed two distinct dimensions. Factor 1 refers to an individual's attitude and skills and it is represented by items 9.1, 9.2, 10.2, 10.1, 4.2, 7.3, 10.3, 9.3, 7.1, 7.2, 4.1, 5. and 1.1. The highest loading items are:

Item 9.1 Co-operation with others.

Item 9.2 Communication.

Item 10.2 Positive work attitude.

Item 4.2 Utilisation of material.

Item 7.3 Ability to do the job.

Item 10.3 Rewarding subordinates.

Factor 2 refers to work performance items which are 6.1, 2.1, 2.2, 5.1, 6.2, 8.1, 8.2, 3.1, 3.2, 1.2 and 1.3. the highest loading items are:

Item 6.1 Knowledge of standards.

Item 2.1 Quality of work.

Item 2.2 Work tempo.

Item 5.1 checking/inspection.

Item 6.2 Application of standards.

Item 8.1 Budgeting effectiveness.

Item 8.2 Costing effectiveness.

Item 3.1 Scheduling of work.

The two factor structure supports the theory that performance measurement consists of behavioural and outcome criteria (Cascio, 1991:74; Dickinson & Rosow, 1982:53). Notwithstanding this, the one factor structure has been retained by the researcher although there is an equally justified argument for using the two factor structure.

COMMENT

The Cronbach alphas and the item-test correlations of the seven questionnaires were reported on and all of the instruments were found to be reliable.

A factor analysis of each instrument was carried out, using a one and two (rotated) factor structure to determine the most suitable manner in which to interpret the results from each instrument. This has served to establish whether or not the underlying constructs can be established from the items and which items can be eliminated. It has been established that the underlying constructs can indeed be determined by the items, but the finer conceptualising of the different dimensions cannot be identified in all instances. This is possibly because of the conceptualising of some constructs which are interdependent and difficult to separate out. All items have been included, and of these 96% were found to be statistically acceptable. The determination of the reliabilities and the appropriate factor structures of the measuring instruments are necessary for the descriptive and inferential statistics. This will be discussed in the next two sections.

6.2 DESCRIPTIVE STATISTICS

In this section a brief explanation will be given of the means and the standard deviations of the dimensions in the measuring instruments. A more extensive interpretation will be made of the intercorrelations of the dimensions to establish the relationships that determine the profiles in this research.

For the purposes of simplification the following abbreviations will be used where necessary when referring to the questionnaires and the dimensions:

Climate questionnaire

DM	-	Decision making
JOS	-	Job and organisation structure

RC	-	Role clarity
JS	-	Job standards
CH	-	Conflict handling
SUP	-	supervisory effectiveness
COM	-	Communication
TB	-	Team building
RESP	-	Responsibility
REW	-	Reward
SAT	-	Job satisfaction
TENS	-	Job tension
LEV	-	Propensity to leave
PROF	-	Contribution to profits

Team work questionnaire

TW	-	Team work within teams
SHI	-	Sharing information
COP	-	Co-operation between teams
FR	-	Feedback and recognition

Supervisory support questionnaire

IS	-	Information support
APS	-	Appraisal support
INS	-	Instrumental support
ES	-	Emotional support

Salutogenesis questionnaires

COMP	-	Comprehensibility
MAN	-	Manageability

MEAN	-	Meaningfulness
SOC	-	Total Sense of Coherence
SE	-	Self-efficacy
LOC	-	Locus of control

Self-Appraisal questionnaire

WP	-	Performance
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6.2.1 Means and standard deviations

These are reported in appendix 2. The table reflects the variables that have been measured, the sample sizes, the means, the standard deviations and the minimum and maximum scores obtained for each variable. The data forms the basis for the correlations and the factor analyses that have been used in the empirical research.

6.2.2 Intercorrelations

In this section the intercorrelations of the dimensions which comprise the team building, the salutogenic and the work performance profiles will be discussed and interpreted. In this regard the following research hypotheses will be tested, namely:

- H1- There are significant relationships between the interactive and directive dimensions of team building.
- H2- There are significant relationships between the salutogenic concepts.
- H3- There are significant relationships between the salutogenic concepts and work performance.

H4- There are significant relationships between team building, salutogenesis and work performance.

The intercorrelations will be discussed in the same order as the listed hypotheses.

6.2.2.1 Team building

a) Reporting of the intercorrelations

In table 6.12 the intercorrelations of the directive team building dimensions are presented.

Table 6.12: The intercorrelations between the directive team building dimensions

	Decision-making	Job and organisation structure	Role clarity	Job standard	Supervisor effectiveness	Job satisfaction
Decision-making	1.00	0.62**	0.34**	0.40**	0.45**	0.43**
Job and organisation structure		1.00	0.48**	0.54**	0.50**	0.51**
Role clarity			1.00	0.43**	0.46**	0.48**
Job standard				1.00	0.56**	0.54**
Supervisor effectiveness					1.00	0.46**
Job satisfaction						1.00

**p<0.001

The intercorrelations of the interactive dimensions will not be reported on in a separate table, because these are included in tables 6.13, 6.14 and 6.15, and will be reported on in the interpretation of these tables. Refer to 5.4.3 on inferential statistics for the factor structuring of the directive, the interactive and the interactive and directive dimensions. Supervisory support is a separate factor in team building and comprises

both directive and interactive dimensions.

In table 6.13 the intercorrelations between the team work and the climate dimensions are presented.

Table 6.13: The intercorrelations between team work and the climate dimensions

Climate dimensions Description label	Team Work dimensions			
	Teamwork within teams	Sharing of information	Co-operation between teams	Feedback and recognition
Decision making	0.40**	0.52**	0.44**	0.57**
Job organisation structure	0.40**	0.43**	0.42**	0.55**
Role clarity	0.39**	0.38**	0.37**	0.40**
Job standards	0.50**	0.42**	0.42**	0.41**
Conflict handling	0.49**	0.44**	0.47**	0.53**
Supervisor effectiveness	0.48**	0.38**	0.38**	0.43**
Communication	0.50**	0.52**	0.53**	0.64**
Team building	0.54**	0.43**	0.50**	0.55**
Responsibility	0.23**	0.21**	0.25**	0.25**
Reward	0.30**	0.53**	0.42**	0.68**
Job satisfaction	0.41**	0.39**	0.41**	0.38**
Absence of tension	0.19**	0.21**	0.16*	0.27**
Propensity to leave	0.37**	0.42**	0.46**	0.50**
Contribution to profits	0.54**	0.57**	0.54**	0.62**

** p < 0.001 * p < 0.01

In table 6.14 the intercorrelations between the climate and the supervisory support dimensions are presented.

Table 6.14: The intercorrelations between the climate and supervisory support dimensions

Climate dimensions Description label	Supervisory Support dimensions			
	Information Support	Appraisal Support	Instrumental Support	Emotional Support
Decision making	0.40**	0.38**	0.43**	0.40**
Job organisation structure	0.39**	0.42**	0.47**	0.42**
Role clarity	0.31**	0.36**	0.34**	0.30**
Job standards	0.33**	0.44**	0.36**	0.34**
Conflict handling	0.40**	0.45**	0.42**	0.45**
Supervisor effectiveness	0.53**	0.62**	0.60**	0.57**
Communication	0.53**	0.56**	0.57**	0.54**
Team building	0.33**	0.39**	0.37**	0.37**
Responsibility	0.27**	0.23**	0.27**	0.30**
Reward	0.33**	0.31**	0.34**	0.31**
Job satisfaction	0.40**	0.42**	0.39**	0.38**
Absence of tension	0.23*	0.22**	0.27*	0.26**
Propensity to leave	0.43**	0.43**	0.45**	0.43**
Contribution to profits	0.46**	0.51**	0.47**	0.44**

** p < 0.001 * p < 0.01

In table 6.15 the intercorrelations of the supervisory support and team work dimensions are presented.

Table 6.15: The intercorrelations between the supervisory support and team work dimensions

Team work dimensions Description label	Supervisory Support dimensions			
	Information support	Appraisal support	Instrumental support	Emotional support
Teamwork within teams	0.41**	0.46**	0.41**	0.40**
Sharing of information	0.40**	0.41**	0.37**	0.36**
Co-operation between teams	0.35**	0.39**	0.36**	0.33**
Feedback and recognition	0.44**	0.45**	0.45**	0.39**

** p < 0.001

b) Interpretation of the intercorrelations

The purpose of this section is to establish the relationships between directive and

interactive dimensions of the questionnaires. Thereafter the intercorrelations will be interpreted with regard to the properties of a team building profile and the intra- and interpersonal personality characteristics of the optimal team member.

Tables 6.12 to 6.15 The intercorrelations between the questionnaires

The intercorrelations of the dimensions within each of the questionnaires will be dealt with.

Table 6.12 reports on the intercorrelations between the directive dimensions in the team building profile. It will be noted that the correlations between the dimensions (DM, JOS, RC, JS, SUP and SAT) are significant, and correlations between 0.43 and 0.62 were obtained. In this regard, the directive dimension of the team building profile has been established through significant correlations.

Within the team work questionnaire TW, SHI, COP and FR correlate significantly with all the dimensions in the climate and supervisory support questionnaires. As far as correlations with the climate questionnaire are concerned, these vary between 0.16 and 0.68. Most of the correlations are strong and reveal what is expected, that there is a relationship between an individual's perceptions of the directive and interactive properties in climate and his/her functioning as a team member. There is a significant correlation of 0.68 between FR and REW both of which are interactive dimensions, indicating the link between recognition and reward. There is also a correlation of 0.68 between FR and COM both of which are interactives. There is a strong correlation of 0.50 between TW an interactive and JS a directive. This indicates that for teams to work effectively, clear job standards are required. It is clear from table 6.13 that the team work and climate dimensions are interrelated, both on a directive and interactive basis, and for an individual to function as an optimal team member, he/she requires a positive perception of the directive and interactive properties of climate in an organisation. In table 6.15 the team work variables are significantly correlated with the supervisory support dimensions; and correlations of between 0.35 and 0.46 were obtained. Most

of these correlations are strong and reveal what is expected, namely that there is a relationship between the amount of support an individual receives from his/her supervisor, and how the individual perceives that teams function in an organisation. There is a correlation of 0.41 between INS and TW, which indicates that the provision of resources by the supervisor enhances team work. The correlation of 0.46 between APS and FR indicates that the individual perceives the appraisal given by his/her supervisor, within the context of feedback and recognition. The correlation of 0.40 between ES and TW indicates that teams work well when an individual receives emotional support from his/her supervisor. In overall terms, the correlations between the dimensions in the team work and the supervisory support questionnaires indicate that good team work is dependant on good supervisory support for each individual.

All the dimensions in the climate questionnaire, correlate significantly with the dimensions in the team work and supervisory support questionnaires (refer tables 6.13 and 6.14). Relationships with team work have been dealt with above. As far as the relationship with supervisory support are concerned, the correlations between the dimensions vary from 0.22 to 0.60. Most of the correlations are strong, and reveal what is expected, namely that an individual's perceptions of his/her supervisor's support influences his/her perceptions of climate within the organisation. There is a correlation of 0.60 between INS and SUP. The individual's opinion of his/her supervisor's effectiveness is dependant on the amount of support he/she receives in terms of resources. There is a correlation of 0.53 between IS and COM, suggesting that one's perception of communication in the organisation is dependant upon the amount of information one receives from one's supervisor. The correlation of 0.40 between SAT and IS suggests that one's satisfaction with one's job is related to the amount of information one receives from one's supervisor.

On the basis that there is a relationship between the various concepts, namely climate, supervisory support and team work it seems that these can be developed into a profile with underlying personality characteristics.

Consequently, the findings will be discussed in terms of the team building profile and the intra- and interpersonal characteristics of an optimal functioning team member.

a) The team building profile

The findings reveal that there are significant relationships between the directive and interactive dimensions of the three concepts, namely climate, supervisory support and team work. These all correlate significantly with one another, which makes for a very strong team building profile comprising the different dimensions. Thus a construct emerges which fairly represents the underlying concepts as a whole. This construct is known as the TEAM BUILDING PROFILE in this research. In terms of this the directives, the interactives and the directives/interactives have been established as factors through factor analysis (refer 6.3).

b) The personality profile of the optimal functioning team member

Intrapersonal characteristics

• **Cognitive characteristics**

The cognitive characteristics of an individual's perception of organisational climate relate to an understanding of the effectiveness of the different properties, and how these affect the individual in his/her work. These relate to how decisions are taken, the clarity of roles, standards and structures, and reward systems. The optimal functioning team member is able to identify with these in a cognitive sense.

The optimal functioning team member obtains guidance, direction and information required to perform his/her work from the supervisor. This makes cognitive sense to him/her. On the basis of this the person is able to make sensible judgments.

Team work reflects cognitively when a person understands his own and the goals and roles of his/her fellow team members. The individual understands how he/she contributes to the organisation and is able to plan his/her work accordingly.

The optimal functioning team member can understand how order is created in the organisation, and he/she identifies with this cognitively. The intercorrelations of the dimensions confirm this.

- **Affective characteristics**

Perceptions of climate influence the team member's identification and involvement in the team and organisation. There is a relationship between this feeling and the reward and recognition one perceives and receives. The correlations indicate a close relationship between these so as to promote a feeling of purposefulness and sense of direction.

Supervisory support reflects an attitude one has about supervision and the positive feelings one has about being able to achieve results within the context of a supportive climate and team work. The individual feels satisfied with the support. He/she identifies with the organisation and this enhances the person's self-image. The individual has a well developed self-awareness of his/her capabilities.

Team work has as the affective component the feeling of belonging and sense of purpose, derived from working in an organisation which has effective supervision and well established management practices. The individual has an identity with the organisation and this provides him/her with a sense of well-being.

As far as the team building profile is concerned, there are certain inherent affective characteristics which have been confirmed through the intercorrelations. The optimal functioning team member identifies with the organisation, wants to get involved with the team and obtains satisfaction through different aspects of the work environment. Work has a sense of purpose and meaning, and he/she derives satisfaction from being at work.

- **Conative characteristics**

Climate has, as the conative characteristic for the individual, the ability to perform optimally in his/her role and to achieve the desired goals. Climate also has a close relationship with supervision and the principles of team work particularly for creating an atmosphere of achievement for the team member. The optimal team member is able to work productively within the climate.

Supervisory support has, as a conative characteristic, the striving for the satisfaction of some higher-order-need, such as being cared for and noticed, which leads to the team member committing him-/herself to the achievement of goals. There is a relationship between this and climate and team work in terms of productivity.

Team work has, as a conative characteristic, the satisfaction of the need for belonging and identification. It has a close relation with climate and supervisory support in meeting higher order needs of prestige and accomplishment.

As far as the team building profile is concerned, it contains certain inherent conative characteristics that have been confirmed through the intercorrelations. The optimal functioning team member is motivated to bind him-/herself to the organisation and to satisfy his/her drive for achievement. He/she achieves results through the energy and drive he/she obtains from being a member of a well-functioning team.

Interpersonal characteristics

The interpersonal characteristics are realised through the interactive dimensions in climate, supervisory support and team work. These relate to the interactions with others and to the satisfaction of relationships with colleagues and supervisors. Furthermore the individual is able to communicate with fellow team members. The individual has well developed relationships with others. Intercorrelations were found between all three concepts showing that interpersonal relations are important in all three.

SUMMARY

The above empirical findings agree with the theoretical integration of the concepts of climate, supervisory support and team work, leading to the creation of the team building profile comprising physical properties (directive and interactive dimensions) and the personality profile of the optimal functioning team member.

Herewith the first hypothesis is not rejected, namely that there are significant relationships between the directive and interactive dimensions of team building.

6.2.2.2 *Salutogenesis*

a) Reporting on the intercorrelations

Table 6.16 reports on the intercorrelations of the three salutogenic concepts.

Table 6.16: The intercorrelations between the salutogenic concepts

	Compre- hension	Manageability	Meaning- fulness	S.O.C. total	Internal locus of control	Self-efficacy
Comprehension	1.00	0.60**	0.54**	0.86**	0.45**	0.38**
Manageability		1.00	0.58**	0.86**	0.46**	0.34**
Meaningfulness			1.00	0.81**	0.38**	0.44**
SOC total				1.00	0.51**	0.44**
Internal locus of control					1.00	0.21**
Self-efficacy						1.00

**p<0.001

b) Interpretation of the intercorrelations

The purpose of this section is to establish the relationships between the salutogenic concepts. Thereafter, the intercorrelations will be interpreted with regard to the properties of the salutogenic profile and the intra- and interpersonal personality characteristics of the optimal functioning individual.

Table 6.16: The salutogenic questionnaires

In table 6.16 all the correlations between the salutogenic concepts are significant, and the correlations vary from 0.21 to 0.46. The sense of coherence variables are significantly correlated with the other salutogenic concepts.

There is a 0.45 correlation between COMP and LOC, which indicates a relationship between a person's problem solving abilities and understanding the bigger picture in his/her environment. There is also a correlation of 0.38 between COMP and SE, indicating that there is a relationship between understanding the bigger picture and confidence in one's ability to achieve results.

MAN has significant relationships with the other salutogenic concepts. There is a correlation of 0.46 between MAN and LOC, indicating that the person who can cope with events in life is the one who is able to take responsibility for him-/herself and make the appropriate decisions. There is a correlation of 0.34 between MAN and SE, which means that the person who is able to cope is also likely to have confidence in his/her abilities to complete tasks properly.

MEAN also has significant relationships with the other salutogenic concepts. There is a correlation of 0.38 between MEAN and LOC, indicating that a person who is prepared to take the initiative and responsibility is the one who derives the greatest sense of meaning and purpose from life. The correlation of 0.41 between MEAN and SE suggests that the person who is prepared to commit him-/herself emotionally to events

is likely to have confidence in his/her abilities to succeed.

It should be noted that the total SOC total correlates 0.51 with LOC and 0.44 with SE indicating the very strong relationships between sense of coherence and these other concepts.

There is a significant correlation of 0.21 between LOC and SE. Whilst the correlation is not very high it is nevertheless indicative that there is a meaningful relationship between the ability to take initiative and responsibility for determining the destiny of one's life and the belief in one's capabilities to achieve results.

On the basis that there are significant relationships between the salutogenic concepts, it seems that the underlying properties of the concepts can be developed into a profile with underlying personality characteristics.

Consequently the findings will be discussed in terms of the profile and the intra- and interpersonal personality characteristics of the optimal functioning individual.

a) The salutogenic profile

The profile is based on the properties that give rise to salutogenic thinking. In the first instance, it is built around events in the person's environment that enable him/her to perceive events as orderly make sense of events, and to comprehend the bigger picture. It also considers issues that make life meaningful, and where one is prepared to commit oneself emotionally. The events in life must also be manageable and the individual must be able to cope. Thus one needs to isolate the events in life that influence one's thinking and behaviour. Secondly, the profile is also based on the premise that one is able to use one's capabilities and initiative to solve problems. Therefore one needs to determine the events in the environment that encourage one to adopt a problem solving mentality. Thirdly, the profile is based on the view that one has of one's abilities to perform tasks successfully. Events in the environment have an

influence on the view one has of one's capabilities. Thus the profile considers the events in the environment that have an influence on the behaviour and performance of an individual.

b) The personality profile of the optimal functioning individual

Intrapersonal characteristics

- **Cognitive characteristics**

There are relationships between all the concepts which suggests that comprehensibility in the sense of coherence concept is related to the locus of control and self-efficacy concepts. All of these have to do with the handling of stimuli, cognitively, in a meaningful way such as thinking about problems and solving them through rational thought. Furthermore each has to do with an understanding of the use of self-regulating mechanisms to make events more understandable. The individual is able to evaluate events and solve problems because he/she understands the relationship between them.

As far as these concepts are concerned the same inherent cognitive characteristics are present in each as confirmed by the findings of the intercorrelations.

- **Affective characteristics**

Meaningfulness is a dimension of the sense of coherence that reflects whether or not a person can make emotional sense out of events. It relates to an internal locus of control where such a person derives meaning and confidence in solving problems. It gives him/her a sense of satisfaction which enhances his/her self-image. This has been confirmed in the empirical findings.

There is also a relationship between meaningfulness and the self-confidence one experiences that one has the capabilities to successfully perform a task as measured in the self-efficacy concept. The person's self-image is enhanced and this gives the person a feeling of satisfaction knowing that results can be achieved.

Thus there is a commonality in the underlying affective characteristics of the salutogenic concepts which have been confirmed in the intercorrelations.

- **Conative Characteristics**

One of the dimensions of the sense of coherence is manageability which relates to the ability of a person to cope with circumstances. It has a relationship with internal locus of control and the person is able to exercise his/her initiative to cope with a situation and manage stress.

Furthermore manageability has a relationship with self-efficacy in that the person makes use of his/her capabilities and thereby is able to cope with the performance of a task. Achievement of goals is a feature of the optimal functioning individual.

As far as the salutogenic concepts are concerned the conative characteristics are inherently present in each and this has been confirmed through the intercorrelations.

Interpersonal characteristics

All of the concepts, sense of coherence, locus of control and self-efficacy refer to the importance of relationships with society at large and with people in organisations. There were not specific dimensions which measured interpersonal relationships. However the intercorrelations confirm the importance of interpersonal relationships.

SUMMARY

The above empirical findings agree with the theoretical integration of the salutogenic concepts in relation to the properties of the salutogenic profile and the characteristics of the optimal functioning individual.

Herewith the second hypothesis is not rejected, namely there are significant relationships between the salutogenic concepts.

6.2.2.3 *Work performance*

a) **Reporting on the intercorrelations**

Table 6.17 reports on the intercorrelations between the salutogenic concepts and performance.

Table 6.17: The intercorrelations between the salutogenic concepts and performance

	Sense of coherence				
Performance	Comprehension	Manageability	Meaningfulness	Self-Efficacy	Internal Locus of Control
Self-appraisal	0.25**	0.25**	0.35**	0.43**	0.20**

** p < 0.001

In this section WP refers to performance

b) **Interpretation of the intercorrelations**

The purpose of this section is to establish the relationships between the salutogenic concepts and performance as measured through self-appraisal. Thereafter the intercorrelations will be interpreted with regard to the properties of the work

performance profile and the intra- and interpersonal personality characteristics of the optimal performing individual.

Table 6.17: The Salutogenic and Self-Appraisal questionnaires

The reason for using this table arises from the relationship between self-appraisal of performance and salutogenic thinking, self-efficacy in particular (refer to 4.3.2). In table 6.17 the correlations vary between 0.20 and 0.43. These are all significant correlations confirming the relationships between salutogenesis and performance.

There is a correlation of 0.25 between COMP and WP. This suggests that the clearer the understanding a person has about events in his/her environment the higher he/she will deem his/her performance to be.

The correlation of 0.25 between MAN and WP indicates that the person who is able to cope with and manage the affairs in his/her environment sees him-/herself as being able to achieve results required of him/her.

Of all the sense of coherence dimensions MEAN has the highest correlation with WP. The correlation is 0.35. This indicates that a person who has meaning in what he/she is doing is really prepared to commit him-/herself emotionally to the task with the result that he/she achieves the desired results.

The highest correlation between the salutogenic concepts and WP is achieved with SE where the correlation is 0.43. This is in line with the literature where SE is mentioned as a significant salutogenic concept which relates to self-appraisal of performance (Garland, 1988:383; Lane & Herriot, 1990:79). In terms of this there is a strong relationship between the person's belief in his/her capabilities to perform a task and the results he/she actually achieves in the performance of the task.

There is a correlation of 0.20 between LOC and WP. Although this is not a strong correlation, it is significant. This suggests that a person who uses his/her own abilities to solve problems, will invariably judge his/her performance favourably.

In 5.2.7.6 it was noted that there are significant correlations between actual hard data performance and self-appraisal of performance on the mine. In this regard salutogenic beliefs can be regarded as predictors of a person's performance.

On the basis that there are significant relationships between the concepts of salutogenesis and work performance (refer 1.5.3.2) through self-appraisal, the principles can be developed into a profile with underlying personality characteristics. Consequently the findings will be discussed in terms of the profile and the intra- and interpersonal personality characteristics of the optimal performing individual.

a) The work performance profile

The essence of the work performance profile is that the individual has an opportunity to evaluate his/her own performance. The person makes a cognitive judgment about the level of performance (Garland, 1988:383). The measurement of performance is against previously determined criteria which are both behavioural and output in nature. These have been grouped into an overall rating for the purposes of this research and as such reflect the performance of the individual. A two-factor analysis (refer 6.1.7) indicates that two factors (behavioural and outcome) are identified and can be used equally as a basis for the work performance profile.

The other important aspect of the work performance profile is that the individual is permitted to rate his/her own performance through self-appraisal. The intercorrelations show that self-ratings are a reflection of how the person feels salutogenically which makes salutogenic thinking an important feature of this profile. The key elements of the profile which have been statistically confirmed in the findings are performance criteria, self-ratings and the salutogenic concepts.

b) The personality profile of the optimal performing individual**Intrapersonal characteristics****• Cognitive characteristics**

Comprehensibility as a dimension of the sense of coherence, relates to the person's ability to make sense of the stimuli in the environment. It is related to the judgments one makes of one's performance based on feedback on past performance and assessment of one's abilities to perform in the future. This is self-appraisal acting as a cognitive mediator between past performance and future performance. Being related to internal locus of control the person who cognitively understands the environment is able to solve problems so as to realise his/her potential. Comprehensibility also has a relationship with self-efficacy and as such the individual makes use of his/her inner capabilities in a cognitive sense to meet the demands of the situation. The person makes reasoned cognitive decisions about future levels of performance.

As far as the work performance profile is concerned the cognitive characteristics are inherently confirmed through the intercorrelations.

• Affective characteristics

Meaningfulness, as a dimension of the sense of coherence, enables a person to make emotional sense out of events. Through self-appraisal of performance, it reflects the meaning attached to stimuli from the work environment, and the satisfaction knowing that one is performing well. It is related to internal locus of control, and the satisfaction derived from experiencing the feeling of achieving results through the use of one's own inner resources. It is also related to self-efficacy and there is an emotional connection between knowing that results can be achieved and actively achieving results. There is also a strong sense of pride which enhances the person's self-image and confidence, believing that the results are achievable.

As far as the affective characteristics are concerned there is an underlying inherent connection between the concepts as evidenced through the intercorrelations.

- **Conative characteristics**

Sense of coherence has as one of its dimensions manageability which is the ability to cope with the demands of a situation. The optimal performing individual is able to handle demanding situations and adjust to new demands placed on him/her accordingly. Through the relationship with internal locus of control the optimal performing person is able to manage the situation competently through the use of self-control mechanisms and capabilities to achieve results. Manageability also has a relationship with self-efficacy and the person is able to use his/her capabilities to overcome problems so as to achieve results. Barriers are not perceived as a problem.

As far as the conative characteristics are concerned there are inherent underlying relationships between the concepts as evidenced through the intercorrelations.

Interpersonal characteristics

The concepts of sense of coherence, locus of control, self-efficacy and work performance all affirm the importance of interpersonal relationships. Work performance which is measured through self-appraisal is the only concept which actually measures interpersonal characteristics. The individual has well developed relationships with his/her superior, subordinates and work colleagues through the process of performance ratings and through contact at work. There is also an emotional bond with others in setting standards of performance. The other concepts do not measure interpersonal dimensions per se. Nevertheless the intercorrelations between the concepts confirm the importance of interpersonal relationships. Intercorrelations are inherent in all the concepts.

SUMMARY

The above findings generally agree with the theoretical integration of the work

performance profile whereby performance has a relationship with the salutogenic concepts in this research as evident through self-appraisal of performance.

Herewith the third hypothesis is not rejected, namely that there are significant relationships between the salutogenic and the work performance concepts.

6.2.2.4 Team building, salutogenesis and work performance

This section will report on the intercorrelations between the team building concepts (climate, supervisory support and team work) on the one hand and the salutogenic (sense of coherence, locus of control and self-efficacy) and work performance concepts on the other.

Table 6.18 reports on the intercorrelations of climate, salutogenesis and performance.

Table 6.18: The intercorrelations between climate, salutogenesis and performance

Climate Dimensions	Antonovsky				Rotter	Bandura	Self- appraisal
	Compre- hension	Manage- ability	Meaning- fulness	S.O.C Total	Internal locus of control	Self - Efficacy	Work per- formance
Decision making	0.20***	0.36***	0.29***	0.33***	0.22***	0.07	0.07
Job & organisation structure	0.19**	0.33***	0.28***	0.30***	0.28***	0.11	0.07
Role clarity	0.25***	0.34***	0.28***	0.33***	0.21***	0.25***	0.25***
Job standards	0.19**	0.27***	0.28***	0.29***	0.24***	0.14*	0.23**
Conflict handling	0.22***	0.35***	0.33***	0.35***	0.30***	0.16**	0.33***
Supervisory effectiveness	0.09	0.23***	0.15**	0.18**	0.13*	0.06	0.10
Communication	0.20**	0.34***	0.23***	0.30***	0.26***	0.10	0.11
Team building	0.24***	0.38***	0.21***	0.33***	0.35***	0.10	0.18**
Responsibility	0.26***	0.31***	0.34***	0.35***	0.20***	0.11	0.09
Reward	0.11	0.16**	0.09	0.15**	0.18**	0.01	0.16**
Job satisfaction	0.20***	0.34***	0.32***	0.33***	0.31***	0.16**	0.28***
Absence of tension	0.20***	0.25***	0.16**	0.24***	0.18**	0.07	0.06
Propensity to leave	0.19**	0.32***	0.34***	0.33***	0.27***	0.20***	0.09
Contribution to profits	0.18**	0.28***	0.17**	0.25***	0.25***	0.12*	0.13*

*** p < 0.001 ** p < 0.01 * p < 0.05

Table 6.19 reports on the intercorrelations of supervisory support, salutogenesis and performance.

Table 6.19: The intercorrelations between supervisory support, salutogenesis and performance

Supervisory Support	Antonovsky				Rotter	Bandura	Self-appraisal
Variables	Compre- hension	Manage- ability	Meaning- fulness	S.O.C Total	Internal locus of control	Self - Efficacy	Work performance
Information support	0.10	0.26***	0.14**	0.19**	0.18***	0.01	0.10
Appraisal support	0.12**	0.21***	0.15**	0.19**	0.17**	0.02	0.17
Instrumental support	0.14**	0.29***	0.15**	0.22***	0.22***	0.09	0.08
Emotional support	0.14**	0.28***	0.17**	0.23***	0.22***	0.02	0.13
Supervisory support (total)	0.13**	0.28***	0.16**	0.22***	0.21***	0.01	0.12

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

Table 6.20 reports on the intercorrelations of the team work, salutogenesis and performance.

Table 6.20: The intercorrelations between teamwork, salutogenesis and performance

Team Work	Antonovsky				Rotter	Bandura	Self-appraisal
Dimensions	Compre- - hension	Manage- ability	Meaning- fulness	S.O.C Total	Internal locus of control	Self - Efficacy	Work performance
Teamwork within teams	0.18**	0.29***	0.17**	0.25***	0.24***	0.11	0.10
Sharing of information	0.19**	0.23***	0.16**	0.23***	0.23***	0.08	0.03
Co-operation between teams	0.16**	0.25***	0.19**	0.23***	0.20***	0.09	0.13
Feedback and recognition	0.11	0.23***	0.10	0.17***	0.21***	0.06	0.03

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

Climate, supervisory support and team work together form the team building profile in this research. The intercorrelations with salutogenesis and performance should be viewed holistically.

Table 6.18 indicates that the climate dimensions in most instances correlate significantly with SOC and LOC. As far as the correlations with the SOC components are concerned the significant correlations vary from 0.18 to 0.36 and the range with LOC is 0.13 to 0.31. The majority of the correlations are in the region of 0.25. Of the directive dimensions, RC correlates with COMP at 0.25, with MAN at 0.34 and with MEAN at 0.33. Another directive JOS correlates with SOC at 0.30. The directive dimensions show few meaningful correlations with SE and WP except for RC which correlates 0.25 with both SE and WP. In overall terms the directives have more meaningful correlations with the SOC and LOC and fewer correlations with WP and SE. The correlations between the interactives and the salutogenic variables are similar to the correlations with the directives. The interactives correlate significantly with SOC and LOC at a range between 0.16 and 0.35. There are only a small number of correlations with SE and WP. The conclusion that can be made is that the climate dimensions have most of an impact on SOC and LOC.

Table 6.19 indicates that the supervisory support dimensions correlate mainly with SOC and LOC ranging between 0.10 and 0.28. Correlations are reported between IS and SOC of 0.22, between ES and LOC of 0.22. These and others reported in table 6.19 suggest that supervisory support has an impact on a person's SOC and LOC. It is noted further that the dimensions have no significant correlations with SE and WP. This is a similar finding to that of climate with regards to SE and WP.

Table 6.20 indicates that the team work dimensions correlate with SOC and LOC at a range of between 0.11 and 0.29. As far as the SOC variables are concerned MAN has the highest correlations with TW, SHI, COP and FR ranging between 0.23 and 0.29. The reason for this is that a person perceives his/her ability to function in a team as being related to him/her being able to cope successfully in the work environment. LOC

has generally strong correlations with TW, SHI, COP and FR. The indication here is that good team work facilitates the development of an individual's internal locus of control. As far as SE and WP are concerned no significant correlations were obtained with any of the team work dimensions.

SUMMARY

The team building profile comprising the climate, supervisory support and team work dimensions correlate significantly with sense of coherence, and locus of control. Very few of the dimensions, however, correlate with either self-efficacy and performance with the exceptions of role clarity, job standards, job satisfaction and conflict handling.

It is clear from the intercorrelation matrices that team building has an influence on self-efficacy and performance, mainly through the influence it has on the sense of coherence and locus of control. The interpretation of this, is that variables, which make up the team building profile in the research, can be classified as the generalised resistance resources of Antonovsky (1979). The sense of coherence is influenced by these and the sense of coherence in turn influences the level of self-efficacy. The same applies to the affect that the team building has on locus of control which in turn influences self-efficacy and performance. Team building affects the ability of an individual to be able to take control of situations and use one's initiative to solve problems. Team building determines the extent to which a person can develop his/her capabilities to achieve results in the future.

The conclusion from the above is, that team building influences the salutogenic orientations of an individual and work performance through its relationships with the person's sense of coherence and internal locus of control.

Herewith, the fourth hypothesis is not rejected, namely that there are significant relationships between team building, salutogenesis and work performance.

The integration of the concepts into the performance model of this research and the personality profile of the optimal functioning individual in this model, will be formulated following further statistical analyses. These are handled in the next section.

6.3 INFERENCE STATISTICS

In this section the following research hypotheses will be tested:

- H5 - there is a good fit between the theoretical structure of the performance model and the empirical data.
- H6 - there are significant causal relationships between the interactive and directive dimensions of team building on the one hand, and salutogenesis and work performance on the other.
- H7 - an individual's salutogenic orientations are related to his/her orientations as a team member.

In the previous section, the means, standard deviations, and factor structures of the various measuring instruments were discussed. From these it was decided how best to interpret the data. For the climate questionnaire, it was decided to retain the 14 dimensions, but to bear in mind that these, in fact, measure either directives, or interactives or a combination of both. The analysis of the supervisory support questionnaire indicated that the dimensions are a combination of both types. It is suggested too, that supervisory support should be treated as a separate factor within the team building profile. Further statistical analysis of the data, in this section, reveals that it is best to treat supervisory support as a factor on its own. Team work was found to have dimensions which are inclined to be more interactive in nature. For the purposes of further statistical analyses, the researcher has found it expedient to analyse four factors within the team building profile, namely directive team building, interactive team building, directive and interactive team building, and supervisory

support. These all combine to form the team building profile. As far as the salutogenic profile is concerned, the sense of coherence will be reflected by its three components, namely comprehensibility, manageability and meaningfulness. Self-efficacy will be reflected as a single dimension, locus of control will be reflected as a single dimension and work performance through self-appraisal will be reflected as a single dimension (performance) within salutogenesis (refer 6.2.2.3). These form a factor which represents the salutogenic profile. Thus the total number of factors, that will be put through further statistical analysis to develop and test the performance model, are five (four factors representing the team building profile, and one representing salutogenesis and work performance). The scree plot figure 6.1 indicates that there should be five factors.

The following steps will be followed to establish the factors and confirm them in the performance model:

- 1) Exploratory factor analysis to identify the factors statistically.
- 2) Confirmatory factor analysis to determine whether the empirical data fits the theoretical model.
- 3) A path analysis using LISREL to confirm the direction of the relationships in a causal model.
- 4) Having verified the structure of the performance model the properties of the model will be described together with the underlying personality profile of the optimal functioning person within the context of the performance model.

6.3.1 The exploratory factor analysis of the performance model

The data, obtained from the responses to the questionnaires and intercorrelated, was further factor analysed, using principal components factor analysis and this was initially unrotated, and then rotated, using a varimax rotation, where the five factor exploratory factor analysis model was achieved. The output data from these factor analyses is depicted in tables 6.21 and 6.22. The scree plot which confirmed a five factor model is shown in figure 6.1.

Table 6.21 depicts the unrotated factor structure.

Table 6.21: The initial factor method: Principal components factor analysis

	VARIABLE	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	COMMU- NALITIES (h ²)	M S A
1	Feedback/recognition	0.737	-0.215	-0.339	0.018	0.09	0.747	0.913
2	Co-operation between teams	0.652	-0.056	-0.241	0.159	-0.097	0.633	0.938
3	Sharing of information	0.662	-0.123	-0.272	0.062	0.087	0.591	0.935
4	Contribution to company profits	0.763	-0.092	-0.172	0.098	0.056	0.667	0.947
5	Teamwork within teams	0.662	-0.061	-0.085	0.183	-0.214	0.643	0.915
6	Team building	0.709	0.053	-0.246	0.019	-0.100	0.580	0.952
7	Conflict handling	0.731	0.084	-0.095	0.061	-0.011	0.580	0.917
8	Reward	0.618	-0.221	-0.480	-0.342	-0.051	0.782	0.779
9	Communication	0.807	-0.113	-0.084	-0.022	0.076	0.678	0.969
10	Emotional support	0.700	-0.291	0.545	-0.202	-0.007	0.914	0.904
11	Instrumental support	0.724	-0.328	0.504	-0.155	-0.015	0.924	0.911
12	Information support	0.689	-0.331	0.506	-0.157	0.031	0.871	0.936
13	Appraisal support	0.718	-0.316	0.461	-0.027	0.094	0.842	0.952
14	Comprehension	0.344	0.657	0.082	0.306	0.076	0.675	0.858
15	Meaningfulness	0.399	0.674	0.136	-0.103	0.113	0.663	0.873
16	Manageability	0.507	0.576	0.123	-0.188	0.114	0.654	0.908
17	Bandura (self-efficacy)	0.209	0.606	0.084	0.084	-0.219	0.481	0.768
18	Internal locus of control	0.416	0.448	0.019	-0.198	0.050	0.424	0.930
19	Engineering self-appraisal	0.243	0.518	0.335	0.365	0.077	0.593	0.709
20	Job satisfaction	0.668	0.130	0.044	0.355	0.046	0.692	0.927
21	Job standards	0.663	0.051	-0.068	0.323	-0.267	0.664	0.925
22	Role clarity	0.603	0.167	-0.007	0.280	-0.255	0.561	0.893
23	Job & organisation structure	0.736	-0.012	-0.168	-0.019	0.013	0.748	0.939
24	Supervisor effectiveness	0.688	-0.214	0.206	0.212	-0.114	0.655	0.931
25	Decision making	0.731	-0.002	-0.240	-0.117	0.259	0.695	0.952
26	Responsibility	0.449	0.171	-0.043	-0.335	0.380	0.490	0.907
27	Propensity to leave	0.707	0.022	-0.136	-0.006	0.096	0.600	0.910
28	Absence of tension	0.401	0.058	-0.075	-0.363	-0.219	0.426	0.952
	Factor variances (Eigenvalues)	11.07	2.73	1.95	1.42	1.21	18.44	0.91
	Percentage common variance	38%	9%	7%	5%	4%	63%	
	Cumulative variance	38%	47%	54%	59%	63%		

Factor analysis on 245 data points using the Person statistics as an input data set

Open ended analysis

Initial Factor Method: Principal Components

Scree Plot of Eigenvalues

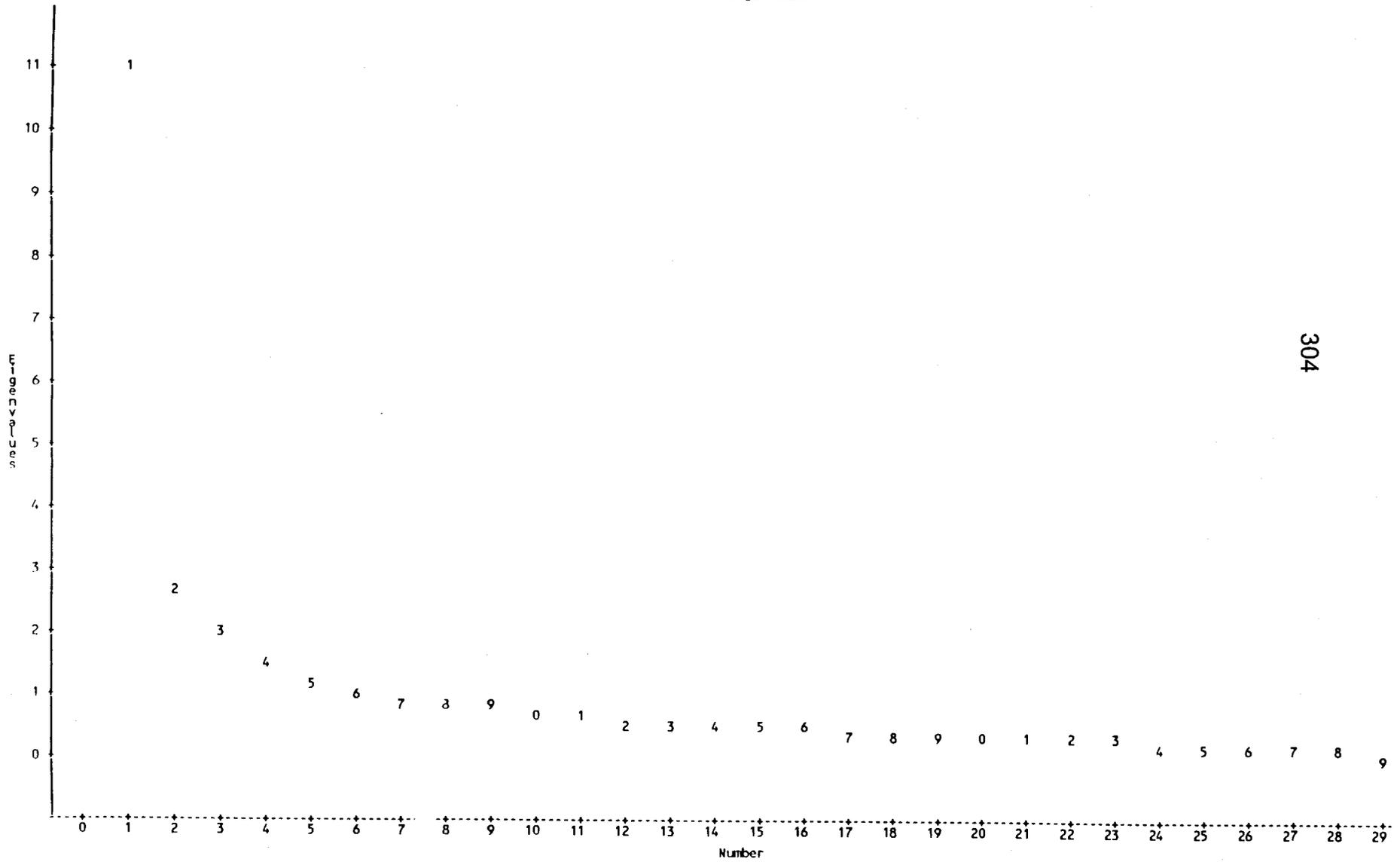


Figure 6.1: Scree plot of eigenvalues

Table 6.22 depicts the rotated five factor structure.

Table 6.22: Orthogonal transformation matrix: varimax rotated factor structure

	VARIABLE	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
1	Feedback/recognition	0.277	0.197	-0.006	0.159	0.298
2	Co-operation between teams	0.154	0.147	0.117	0.170	-0.014
3	Sharing of information	0.164	0.166	0.062	0.133	0.191
4	Contribution to company profits	0.201	0.268	0.127	0.234	0.166
5	Teamwork within teams	0.193	0.268	0.140	0.216	-0.130
6	Team building	0.209	0.143	0.223	0.300	0.207
7	Conflict handling	0.286	0.247	0.293	0.247	0.118
8	Reward	0.266	0.107	-0.030	0.092	0.586
9	Communication	0.255	0.376	0.138	0.305	0.326
10	Emotional support	0.208		0.116	0.127	0.130
11	Instrumental support	0.234		0.076	0.161	0.164
12	Information support	0.251		0.065	0.109	0.114
13	Appraisal support	0.312		0.048	0.235	0.014
14	Comprehension	0.104	0.045	0.172	-0.028	0.095
15	Meaningfulness	0.012	0.040	0.285	0.200	0.148
16	Manageability	0.157	0.150	0.245	0.107	0.184
17	Bandura (self-efficacy)	0.064	-0.085	0.512	0.201	-0.205
18	Internal locus of control	0.198	0.087	0.318	0.038	0.167
19	Engineering self-appraisal	0.030	0.087	0.339	0.298	-0.413
20	Job satisfaction	0.262	0.202	0.211	0.236	0.125
21	Job standards	0.396	0.170	0.134	0.275	0.017
22	Role clarity	0.325	0.152	0.247	0.282	-0.024
23	Job & organisation structure	0.317	0.212	0.129	0.315	0.505
24	Supervisor effectiveness	0.300	-0.513	-0.011	0.243	0.067
25	Decision making	0.472	0.188	0.187	0.272	0.227
26	Responsibility	0.215	0.185	0.366	-0.092	0.073
27	Propensity to leave	0.358	0.214	0.176	0.450	0.127
28	Absence of tension	0.082	0.184	0.198	0.219	0.415
29	Factor variances (Eigenvalues)	5.28	4.17	3.4	2.98	2.20

6.3.1.1 Results of the exploratory factor analysis

The observation from the unrotated initial factor structure table 6.21 is that there are two

distinct factors representing the variables that are measured. Factor 1 includes all of the team building variables (items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 20, 21, 22, 23, 24, 25, 26, 27, 28 and 28) and factor 2 includes all the salutogenic variables including work performance (items 14, 15, 16, 17, 18 and 19). However, in order to refine the data further it was decided to rotate the factor structure to create the five factor model described in 6.3 above. The scree plot suggests that a five factor structure is suitable. The factors smooth out between the fifth and the sixth factors on the scree plot (refer figure 6.1) for eigenvalues 1 and >1 . A five factor model explains 63% of its variance. A two factor model only explains 47% of the variance.

It will be noted from the tables that the five factors identified correspond to the factors hypothesised in this research. Factors 1, 2, 4, 5 make up the team building profile. Factor 3 makes up the salutogenic profile which includes work performance.

The five factors identified through factor analysis are:

Factor 1: Interactive team building (feedback and recognition, co-operation between teams, sharing of information, contribution to company profits, teamwork, team building, conflict handling, reward and communication).

Factor 2: Supervisory support (emotional support, instrumental support, information support and appraisal support).

Factor 3: Salutogenesis (comprehension / meaningfulness / manageability, self-efficacy, internal locus of control and self-appraisal of performance).

Factor 4: Directive team building (job satisfaction, job standards, role clarity, job / organisation structure and supervisor effectiveness).

Factor 5: Interactive and directive team building (decision making, responsibility, propensity to leave and absence of tension).

The initial principal components factor method was used to determine the possible number of factors present. From the Scree plot and eigenvalues greater than one, it was determined that there should be five factors. In order to determine a finer selection of factors an orthogonal varimax rotation was completed. The factor loadings for each of the five factors is $> 0,40$. All the eigenvalues for the respective factors are > 1.0 which fulfils the Kaiser criterion. In the principal components factor method the following factor variances were obtained:

Percentage common variance

Factor 1 = 38%

Factor 2 = 9%

Factor 3 = 7%

Factor 4 = 5%

Factor 5 = 4%

63% of the variance is explained in a five factor rotated model. 47% of the variance is explained in the two factor rotated model. It should be noted too that the Kaiser's measure of sampling adequacy (MSA) is very good indicating that the sampling for the research was of a high standard (correlations of between 0.78 and 0.96).

The communalities (the amount of the variability retained in the model from each individual variable) are reflected in Table 6.21. The total communalities accounted for an overall 63% of the variability retained in the model for each individual variable.

At the exploratory stage the factor analysis also establishes the latent variables and the observed variables for further analysis using confirmatory factor analysis. These are reflected in table 6.23.

Table 6.23: Latent variables and observed variables

Latent Variables	Observed Variables
Interactive team building	Feedback and recognition, co-operation between teams, sharing of information, contribution to company profits, team work, team building, conflict handling, reward, communication.
Supervisory support	Emotional support, instrumental support, information support, appraisal support.
Salutogenesis	Antonovsky's comprehension, meaningfulness, manageability; Bandura's self-efficacy; Rotter's internal locus of control, self-appraisal of performance.
Directive team building	Job satisfaction, job standards, role clarity, job and organisation structure, supervisor effectiveness.
Interactive & directive team building	Decision making, responsibility, propensity to leave, absence of tension.

The exploratory factor structure provides the basis of the performance model. The directive and interactive team building observed variables are included in the interactive team building, supervisory support, directive team building, and the interactive and directive team building, latent variables. The salutogenic and performance observed variables are included in the "salutogenesis" latent variable.

6.3.2 Confirmatory factor analysis

Five factors emerged from the exploratory factor analysis. The five factors were given names and as such represent the latent variables in the research. The observed variables are the variables which constitute each of the latent variables. The purpose of confirmatory factor analysis is to confirm the factor structure and to determine whether or not the empirical data fits the theoretical model. Section 5.4.4, describes the use and properties of confirmatory factor analysis. Windows LISREL 8.1 (Jöreskog &

Sörbom, 1984) was used as the computer programme to run the confirmatory factor analysis model.

6.3.2.1 The confirmatory factor analysis model

This section describes and discusses the output from LISREL.

- **The LISREL estimates of the model**

Table 6.24 reflects the LISREL estimates for each of the observed variables in the model:

Table 6.24: Confirmatory factor analysis LISREL estimates

Latent Variable	Observed Variable	Parameter Estimate	Error Variance (1-R ²)	Variance Explained (R ²)	t Value	Significance level of parameter estimates
Salutogenesis	Antonovsky Comprehension	0.73	0.46	0.54	12.31	P < 0.01
Salutogenesis	Antonovsky Manageability	0.79	0.37	0.63	13.67	P < 0.01
Salutogenesis	Antonovsky Meaningfulness	0.75	0.44	0.56	12.64	P < 0.01
Salutogenesis	Self-efficacy	0.50	0.75	0.25	7.63	P < 0.01
Salutogenesis	Self-appraisal	0.37	0.83	0.14	5.87	P < 0.01
Salutogenesis	Internal locus of control	0.57	0.68	0.32	8.90	P < 0.01
Supervisory Support	Information support	0.92	0.16	0.84	18.63	P < 0.01
Supervisory Support	Appraisal support	0.88	0.25	0.75	17.13	P < 0.01
Supervisory Support	Instrumental support	0.97	0.07	0.93	20.50	P < 0.01
Supervisory Support	Emotional support	0.95	0.11	0.89	19.80	P < 0.01
Interactive Team Building	Conflict handling	0.75	0.45	0.55	13.73	P < 0.01
Interactive Team Building	Communication	0.81	0.35	0.65	14.98	P < 0.01
Interactive Team Building	Team building	0.71	0.49	0.51	12.51	P < 0.01
Interactive Team Building	Reward	0.69	0.52	0.48	11.99	P < 0.01
Interactive Team Building	Contribution to profits	0.79	0.38	0.62	14.42	P < 0.01
Interactive Team Building	Teamwork within teams	0.65	0.58	0.42	11.02	P < 0.01
Interactive Team Building	Sharing of information	0.67	0.55	0.45	11.52	P < 0.01
Interactive Team Building	Co-operation between teams	0.67	0.56	0.44	11.43	P < 0.01
Interactive Team Building	Feedback and recognition	0.78	0.38	0.62	14.29	P < 0.01
Directive Team Building	Job & organisation structure	0.78	0.40	0.60	13.82	P < 0.01

Latent Variable	Observed Variable	Parameter Estimate	Error Variance (I-R ²)	Variance Explained (R ²)	t Value	Significance level of parameter estimates
Directive Team Building	Role clarity	0.65	0.58	0.42	10.74	P < 0.01
Directive Team Building	Job standards	0.69	0.49	0.51	12.15	P < 0.01
Directive Team Building	Supervisor effectiveness	0.71	0.50	0.50	12.17	P < 0.01
Directive Team Building	Job satisfaction	0.69	0.50	0.50	12.05	P < 0.01
Interactive & Directive Team Building	Decision making	0.71	0.49	0.51	12.06	P < 0.01
Interactive & Directive Team Building	Responsibility	0.43	0.82	0.18	6.82	P < 0.01
Interactive & Directive Team Building	Job tension	0.39	0.85	0.15	6.12	P < 0.01
Interactive & Directive Team Building	Propensity to leave	0.68	0.56	0.46	11.29	P < 0.01

$t \geq 2.65$ ($p < 0.01$)

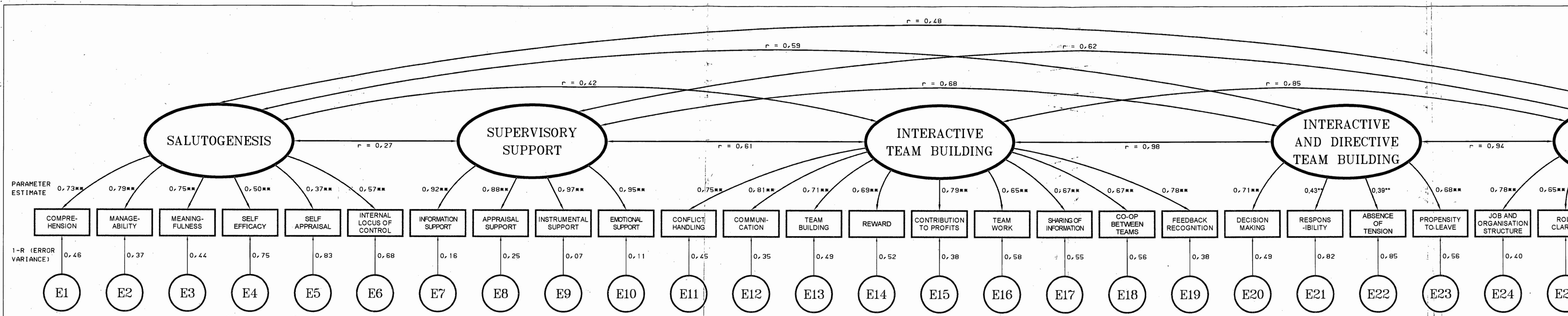
- **The correlations matrix of the latent variables**

Table 6.25 reflects the correlation matrix of the latent variables of the LISREL estimates:

Table 6.25: Correlation matrix of LISREL estimates

Latent Variables	1	2	3	4	5
Interactive team building (1)	-				
Supervisory support (2)	<u>0.61</u> 0.04	-			
Salutogenesis (3)	<u>0.42</u> 0.06	<u>0.27</u> 0.07	-		
Directive team building (4)	<u>0.85</u> 0.03	<u>0.63</u> 0.05	<u>0.49</u> 0.06	-	
Interactive & directive team building (5)	<u>0.98</u> 0.03	<u>0.68</u> 0.05	<u>0.59</u> 0.06	<u>0.94</u> 0.03	-

Most of the correlations are significant or very close to significance at the $p < 0.05$ level of significance.



t VALUE OF PARAMETER ESTIMATE
 P < 0,01** t > 2,65
 P < 0,05* t > 1,98

PARAMETER ESTIMATE - TO WHAT EXTENT THE OBSERVED VARIABLE MANIFESTS ITSELF IN THE LATENT VARIABLE.

CONFIRMATORY FACTOR ANALYSIS OF THE PERFORMANCE MODEL

Figure 6.2: Diagram of the LISREL estimates of the performance model

6.3.2.2 *The goodness-of-fit statistics*

In order to determine whether or not there is a good fit between the theoretical model and the data obtained from this research, goodness-of-fit statistics were computed by LISREL. These have been well discussed and described by Browne and Cudek (1993) and described also in chapter 5 of this research.

Table 6.26 presents the data compared to certain recognised goodness-of-fit indices and their standards:

Table 6.26: The goodness-of-fit statistics (Browne & Cudek, 1993)

Goodness-of-fit index	Standard	Data obtained	Comment
1. The goodness-of-fit index (G.F.I.)	> 0.9	0.86	Reasonable fit
2. The root mean square error of approximation (RMSEA)	< 0.08	0.055	Good fit
3. The Bentler-Bonnet non-normed fit index (BBNFI)	> 0.9	0.93	Good fit
4. The comparative fit index (C.F.I.)	> 0.9	0.94	Good fit

There is a reasonably good fit between the theoretical model and the data obtained from the research, after allowing the error variances of two variables to correlate (the LISREL procedure was carried out by the researcher in conjunction with Prof M. Watkins, Industrial Psychology, University of South Africa).

6.3.2.3 *Discussion of the confirmatory factor analysis model*

Evidence in support of the model is obtained by examining the parameter estimates (table 6.24 and figure 6.2), namely the structural relationship between the indicators (observed variables) and their associated latent variables. The t-values for these are greater than $t \geq 2.65$ ($p < 0.01$) supporting the hypothesis that all indicators exhibit a statistically significant positive relationship with the constructs (latent variables) they were hypothesised to measure.

The model also supports the literature because each of the latent variables has a number of measured indicators to measure each construct. Multiple indicators are preferred because they are more likely to capture a complex theoretical construct than a single measure (Lavee, 1988:939).

According to Jöreskog and Sörbom (1984, in Lavee, 1988), if all the parameters of a model can be uniquely estimated, the whole model is identified. In the case of this research, all parameters of the model have been estimated and the model is fully identified.

It should be noted that where a model is not identified, the LISREL program alerts the user to the fact and does not provide certain statistics namely standard errors and significant t values (Jöreskog & Sörbom, 1984). Other indicators of a poor model are correlations larger than one in magnitude or extremely large standard errors. None of these are evident in this research which indicates the model is identified (Lavee 1988:942). Non-causal relationships (correlations) are indicated by curved double sided arrows.

6.3.2.4 *The LISREL path analysis for the performance model*

The LISREL programme also produces a path direction model. Such a model was produced from the LISREL data output in this research. The figures below show the basic model produced by LISREL. All parameter estimates have F-values significant at $p < 0.01$.

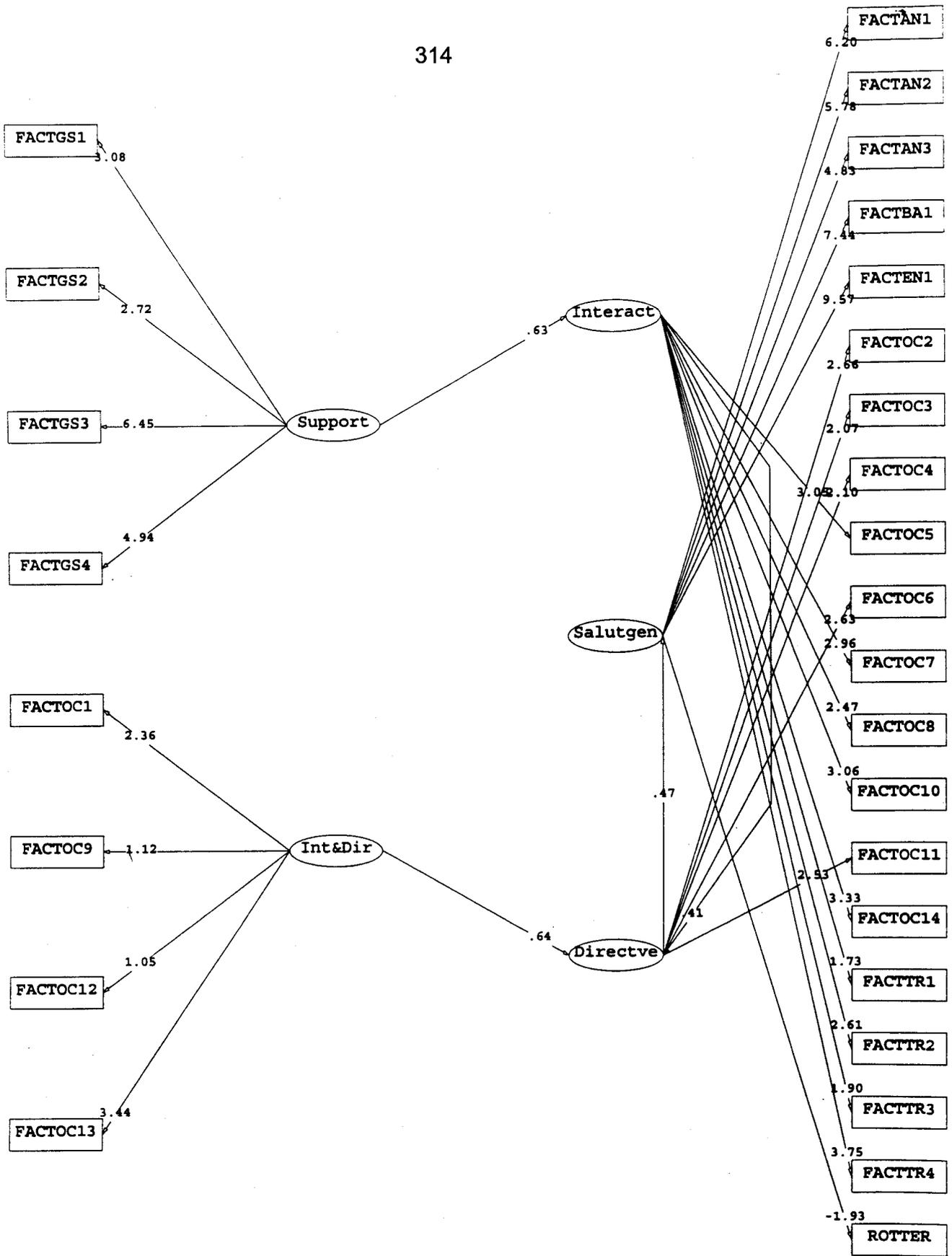


Figure 6.3: The basic path model showing parameter estimates (no error testing)

6.3.2.5 *Structural relationships*

Figure 6.4 below shows how the dependent latent variables are causally related to the independent latent variables. Independent latent variables are latent variables that do not depend on other latent variables. Dependent latent variables are latent variables that depend on other latent variables. According to Lavee (1988:939) the independent and dependent latent variables appear at different stages in the model. In this model supervisory support and directive and interactive team building are independent latent variables, whereas interactive team building, directive team building and salutogenesis are dependent latent variables in terms of the definition of what constitutes an independent and dependent latent variable. The model depicts the relationship between these latent variables and presents these in a cause and effect manner. The parameter estimates represent the hypothesised causal relationship between the various latent variables. The head of the arrows represent the direction of the hypothesised causal relationship (Hughes et al, 1986:138).

In terms of the model supervisory support and the directive and interactive team building latent variables correlate with each other. The supervisory support latent variable has a causal effect on the interactive team building variable. The directive and interactive team building latent variable has a causal effect on the directive team building latent variable. The interactive team building variable has a causal effect on the directive team building latent variable. Thus the various team building profile latent variables have been isolated in the model which show that structural relationships exist between them. Together they form the team building construct.

The important aspect of the model is that the interactive and directive latent team building variables have direct and indirect causal effects upon salutogenesis and work performance. Salutogenesis and performance constitute the salutogenic construct.

The above indicates that there are causal structural relationships between the directive and interactive team building profile variables on the one hand and salutogenesis and

performance on the other.

The figure 6.4 below, produced by the LISREL output, reflects these causal structural relationships in this research and the direction of the parameter estimates are shown in the model. All the parameter estimates are significant at $p < 0.01$. These are also reflected in figure 6.5.

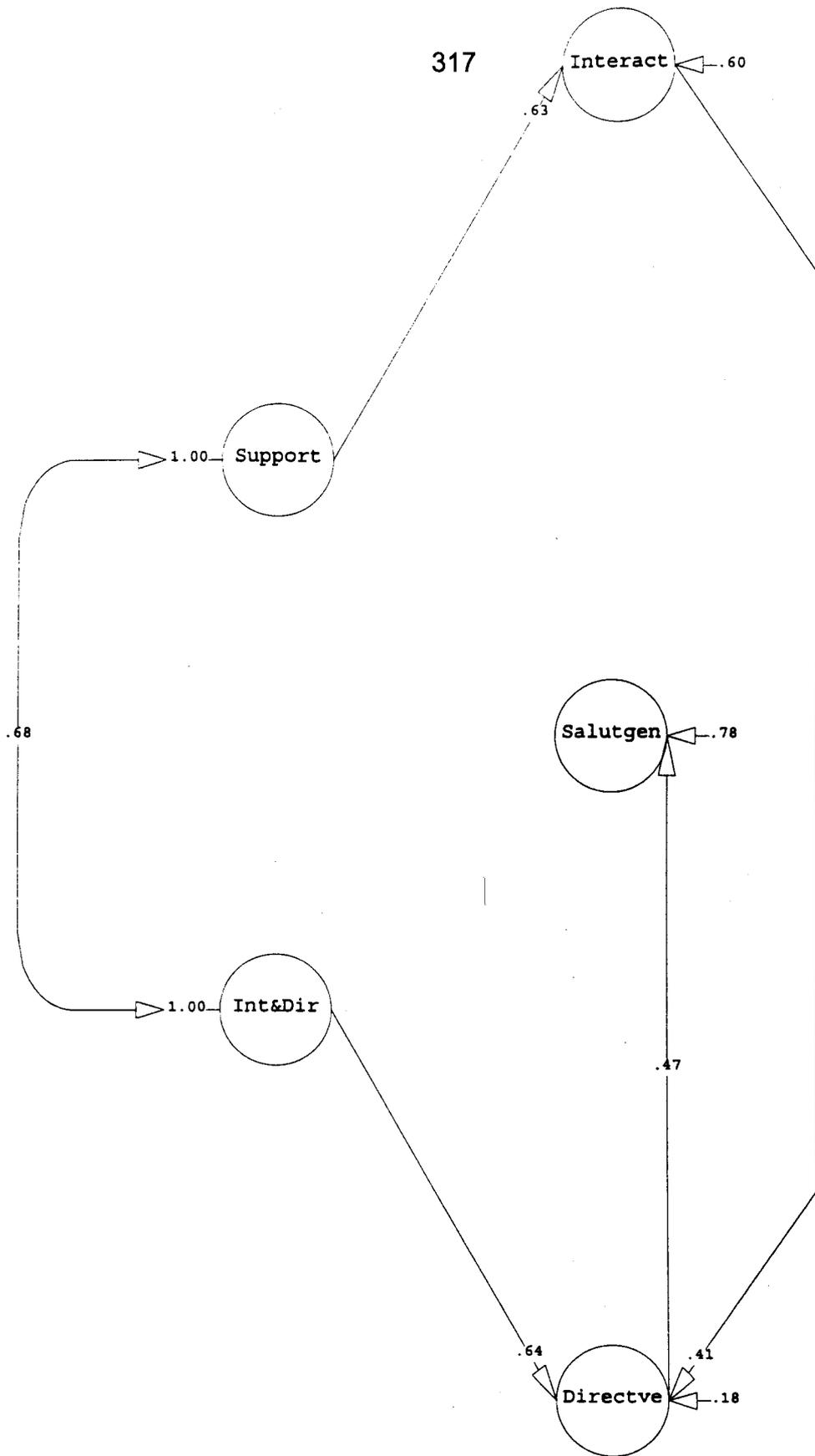
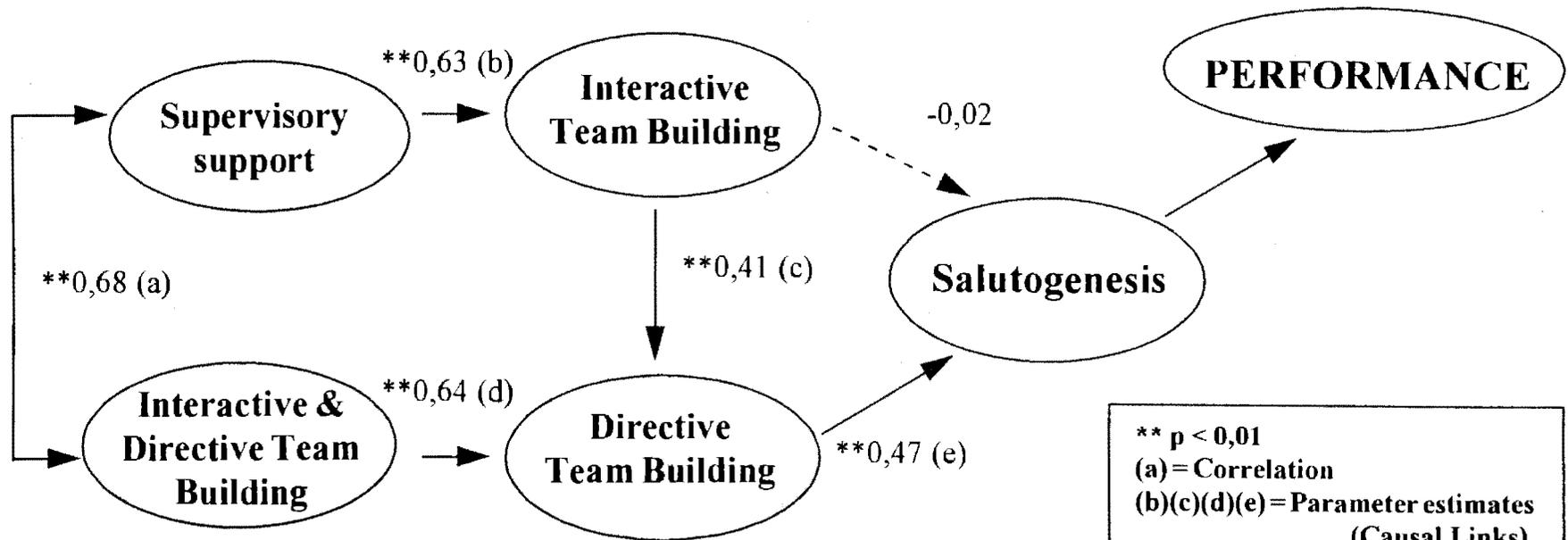


Figure 6.4: Structural relationships - how the dependent latent variables are dependent on the independent latent variables

Path Analysis of the Mine Performance Model

Figure 6.5: Path analysis of the performance model



LATENT VARIABLES

Interactive Team Building

Supervisory Support

Interactive & Directive Team Building

Directive Team Building

Salutogenesis and Performance

OBSERVED VARIABLES

Feedback and recognition, co-operation between teams, sharing of information, contribution to company profits, teamwork, team building, conflict handling, reward, communication.

Emotional support, instrumental support, information support, appraisal support

Decision making, responsibility, propensity to leave, absence of tension

Role clarity, job standards, job and organisation structure, job satisfaction, supervisory effectiveness

Comprehension, meaningfulness, manageability, self efficacy, internal locus of control, engineering self appraisal

Interpretation of the results

The results suggest that the five factor model produced by exploratory factor analysis is confirmed in theory and that the theoretical model fits well with the empirical data (refer figure 6.5). The causal relationships are also clear and they suggest that variables in one's work environment determine one's behaviour (salutogenesis) and performance, reflected through self-appraisals.

On the basis that it is possible to isolate those variables in the work environment, which impact on salutogenesis and performance, it is possible also, to strengthen a person's salutogenic orientation and enhance the performance of an individual. The model is clear in this regard.

The model indicates clearly that salutogenesis and performance (the salutogenic construct) are dependent on interactive and directive team building variables (the team building construct).

Hypotheses 5 and 6 are not rejected, namely:

- H5 - there is a good fit between the theoretical structure of the performance model and the empirical data.
- H6 - there are significant causal relationships between the interactive and directive dimensions of team building on the one hand, and salutogenesis and work performance on the other.

SUMMARY

Team building, on the one hand, and the combination of salutogenesis and self-appraisal of work performance, on the other hand, are two separate and independent constructs. They are also significantly correlated. There is also a causal path

relationship from team building through to salutogenesis and work performance. In this manner the performance model of this research has been confirmed empirically.

6.4 INTEGRATION OF THE TEAM BUILDING AND SALUTOGENIC AND WORK PERFORMANCE CONCEPTS

The purpose of this section is to integrate the concepts of the two constructs, namely team building, on the one hand, and salutogenesis and work performance, on the other, into a profile called the performance model; and to develop the personality profile of the optimal functioning individual in the context of this model.

The structure of the performance model

The empirical research established the existence of the directive and the interactive dimensions of team building and the strong relationships between them. The dimensions are measurable, and influence the perceptions of each individual. The dimensions reflect the extent to which relationships, structures, norms, rules and procedures are present in the organisation. The team building profile is based upon a strong bonding of these dimensions.

The strong relationships between the variables and concepts of salutogenesis and work performance, revealed in the empirical research, develop into a salutogenic profile in the performance model. Some of the properties of this profile relate to how well a person understands his/her environment, whether or not he/she can manage the environment and how emotionally committed the person is to the environment. The salutogenic profile is also influenced by the amount of control a person is able to use to influence his/her environment. In addition, the person senses that he/she has the capabilities to achieve results. It also reflects the performance of an individual.

The empirical findings indicate that the team building profile and the salutogenic (and work performance) profile are closely related. There is a causal connection from team

building through to salutogenic orientations which ultimately impact on the performance of the individual. In this regard the findings suggest that the properties of team building impact on the understanding, the manageability and the emotional commitment of the individual to his/her work. They also influence the amount of control the person is able to exercise in his/her work. The team building properties influence the confidence and performance of the individual through the influence they exert on his/her sense of coherence and locus of control.

The performance model comprises measurable organisational properties as found in team building, measurable behavioural properties in salutogenesis and measurable work performance properties that are strongly related to salutogenic thinking. The empirical findings suggest that the performance model is well established.

The personality profile of the optimal functioning individual

This will be viewed from within the context of intra- and interpersonal personality characteristics.

Intrapersonal characteristics

- **Cognitive characteristics**

Comprehensibility relates to the extent to which the person is able to make sense of events in his/her environment. It has a relationship with team building in so far as the person perceives his/her job is well structured in the organisation. The optimal functioning individual can make cognitive sense of this and also understands how decisions are made. He/she eases his/her problem solving skills in team activities. The organisation appears to him/her as well structured.

Internal locus of control as a cognitive characteristic relates to a person's ability to solve problems using his/her own skills and abilities. It has a relationship with team building

through the influence the person has in decisions that have an effect on him/her. A cognitive understanding of the reasons for decisions, and the person's influence over such decisions, enhances performance. The person understands the influence that he/she has over the interactives and directives, in team building.

An understanding of one's capabilities to perform a task competently, as a cognitive aspect of self-efficacy, enables the person to make rational decisions about his/her work. It has a relationship with sense of coherence in that the self-efficacious person understands, and can comprehend the meaning of events in the work place. The self-efficacious person understands what has to be achieved.

- **Affective characteristics**

Meaningfulness relates to the person's ability to make emotional sense out of happenings in life. It has a relationship with the interactive dimensions of team building as this relates to the sense of belonging a person has from being a member of a well functioning team. The optimal functioning individual derives emotional satisfaction from understanding in a cognitive sense how roles, structures and relationships are part of effective team building. The person is able to communicate and handle conflict competently. This enhances the person's self-image and builds his/her level of confidence.

Internal locus of control is related to team building through the emotional identity with the organisation that the person experiences. This has a positive effect on the person's self-esteem.

Self-efficacy, as an affective characteristic, of the person is related to the person becoming emotionally involved in work related issues. The person also obtains satisfaction from the achievement of goals.

- **Conative characteristics**

Manageability, as a conative characteristic, is the ability of an individual to be able to cope with the stressors of life and to view events as challenging. His/her energy derives from this. Manageability has a relationship with team building in that the optimal functioning person identifies with the goals of the organisation and he/she is indeed involved with goal setting. Achievement of goals is rewarded through recognition and this motivates the person to strive for higher goals.

Internal locus of control, as a conative characteristic, refers to the person's willingness to use his/her initiative and problem solving skills to achieve goals. The achievement of goals reinforces the desire to continue to use his/her inner resources. Internal locus of control has, a conative relationship with team building through the person's ability to take responsibility and to apply initiative in problem solving. Such a person exercises control over events at work.

Self-efficacy has a relationship with team building through the person's ability to cope and accept challenges and to achieve the organisation's goals. A person's judgement of his/her performance levels has a relationship with self-efficacy and he/she strives to become more confident through continued successful performance. The person is able to exercise his/her skills and capabilities at work.

Interpersonal relationships

Although interpersonal relationships are not specifically measured by the salutogenic and work performance concepts, team building has interpersonal dimensions. These are the interactive dimensions of team building. The meaning that one has from one's work, the control one is able to exercise, and the confidence that one has in oneself to perform competently, are related to communication, conflict handling and the support one receives from one's supervisor. The relationships that are evident in these are indicative of other interpersonal relationships that exist within and between the different

concepts

COMMENT

Herewith the seventh research hypothesis is not rejected, namely:

H7 - an individual's salutogenic orientations are related to his/her orientations as a team member.

6.5 INTEGRATION OF THE LITERATURE PROFILES WITH THE EMPIRICAL PROFILES

In chapter 4, the properties of team building, salutogenesis and work performance were integrated into the performance model of this research. In addition the personality profile of the optimal functioning person, within the model, was developed. This has been dealt with empirically in this chapter. The researcher now wishes to integrate the theoretical and the empirical profiles.

The performance model of this research

The performance model comprises properties of the team building profile on the one hand and the salutogenic and the work performance profiles on the other.

The directive and interactive dimensions of team building contain properties in the organisation's environment that can be identified as being Antonovsky's generalised resistance resources and which according to (Antonovsky, 1987:28) help in the development of the sense of coherence. For Rotter (1975:57) and Bandura (1997:21) the environment of an individual also plays an important role in influencing his/her personality orientations.

The macrosociocultural generalised resistance resources are identified in the directive dimensions of team building, such as the rules, standards, structures and procedures of the organisation, and where the theory suggests a relationship exists between the two, the empirical findings have established the relationships. Likewise the interpersonal-relational and the artifactual-material generalised resistance resources are present in the interactive dimensions of team building. Where the theory suggested relationships exist; the empirical findings established the relationships. The extent to which the team building dimensions influence the behaviour of an individual (suggested in theory), has been confirmed through the empirical findings, where there are significant relationships between team building and a person's sense of coherence and locus of control. Theory also suggested that the team building dimensions impact on the performance of an individual. The empirical research found that a person's perception of his/her performance is a function of his/her salutogenic thinking, and the key variable that influences work performance is the self-efficacy of the individual. Self-efficacy has in theory and through the empirical research strong relationships with the other salutogenic concepts which have, as already been stated, strong relationships with team building. There is therefore a strong relationship between team building, salutogenesis and work performance. The causal path from team building through to salutogenesis and work performance was established through the empirical research.

The model which was suggested in theory has been shown to exist empirically. Team building has an impact on the performance of an individual through the influence it has on the salutogenic orientations and behaviour of the individual.

The personality profile of the optimal functioning individual

Within the context of the performance model, the personality profile of the optimal functioning individual will be integrated in terms of the intra- and interpersonal personality characteristics.

Intrapersonal characteristics

- **Cognitive Characteristics**

The optimal functioning person understands his/her role in the organisation, in its objectives, and in the direction in which the organisation is heading. He/she is clear about the policies and procedures, and understands how teams function in the organisation. He/she understands cognitively how the stimuli from the work environment make sense.

The individual takes responsibility for his/her work in the team and uses his/her valuative-attitudinal generalised resistance resources of planning and flexibility to successfully accomplish tasks. The use of his/her own internal problem solving control mechanisms enables the person to cope and adjust and learn.

The person evaluates the organisation in which he/she works, in a cognitive manner, and identifies psychologically with its goals and strives for the highest goals. He/she makes use of his/her problem solving skills for the achievement of goals.

- **Affective characteristics**

The optimal functioning person experiences events in the organisation as being well organised and making sense emotionally. He/she experiences satisfaction with the way the work is organised and he/she feels satisfied in working/sharing with others.

The optimal functioning person achieves goals and this brings about a feeling of satisfaction. The person sees that the results of his/her efforts enhances his/her coping and learning abilities, and this leads to feelings of satisfaction and the development of a good self-image.

A positive assessment of one's own performance encourages the optimal functioning person to work harder and achieve more challenging goals and he/she grows in confidence.

- **Conative characteristics**

The optimal functioning person views life as manageable, and because it is manageable, he/she is able to achieve the goals set. He/she perceives that the stimuli in the organisation are personally manageable and so sees no impediment in the way of achieving his/her goals. The optimal functioning person does not see problems as obstacles, but rather as challenges and this drives him/her to achieve challenging goals. Setting higher and more challenging goals is a sense of satisfaction for the person, because he/she knows and feels that he/she is likely to achieve the goals. The optimal functioning person feels confident that he/she is in control of events in his/her environment. The sense of control that the person has over events, in his/her work environment, enables the person to fully utilise his/her capabilities to achieve work performance objectives. The individual is capable of generalising his/her skills of control to other situations.

Interpersonal characteristics

The optimal functioning person enjoys contact with other individuals, and in the context of the performance model, and as a member of a team, he/she is able to have open discussion with others and communicate in a non threatening environment. Conflict is handled to his/her satisfaction, and he/she is able to develop a trust relationship with other team members. Through membership of his/her team, the optimal functioning individual is able to cultivate good relationships with members of another team.

COMMENT

Herewith the aim of this chapter has been achieved, namely to integrate the theoretical

and empirical profiles in this research into the performance model and the personality profile of the optimal functioning individual in the context of the model.

6.6 CHAPTER SUMMARY

The results of the empirical study were analysed in this chapter. In the first instance the reliability and the factor structure for each of the questionnaires were discussed, as a basis for confirming that the analysis of results was carried out on reliable basis. The descriptive statistics were then presented, and these provided the basis upon which further statistical analyses were made. Hypotheses were then tested, making use of intercorrelations of data to examine the relationships between concepts of the team building, salutogenic and the work performance profiles. Inferential statistics were used to examine the theoretical structure of the performance model. The chapter concluded with the theoretical and the empirical integration of profiles into the performance model and the personality profile of the optimal functioning individual.

CHAPTER 7

CONCLUSIONS, RECOMMENDATIONS AND SHORTCOMINGS

In this chapter, conclusions will firstly be formulated regarding the literature review, the results of the empirical research, and the integration of the literature review and the empirical research. Thereafter, recommendations will be made from this research for the field of industrial psychology and for any further research. Finally, the shortcomings of this research will be discussed, and the chapter will conclude with a chapter summary.

7.1 CONCLUSIONS

Conclusions will be made regarding the literature review and the empirical research. Thereafter conclusions will be formulated with regard to the relationships between the literature review and the empirical research. The conclusions will be formulated in accordance with the aims of the research (refer to 1.3).

7.1.1 Conclusions regarding the literature review

Conclusions will be made about the team building profile, the salutogenic profile, the work performance profile and finally about the integration of the profiles into the performance model of this research.

The first aim

The first aim, namely to create a team building profile of the directive and interactive dimensions of organisational climate, supervisory support and team work, and to determine the personality profile of the optimal functioning team member was achieved in chapter 2.

The literature review, in **chapter 2**, identified that there are a number of properties of climate, supervisory support and team work which through an individual's perceptions provide a measurement of the psychological atmosphere of the organisation. These perceptions in turn have an effect on the behaviour and performance of an individual. These dimensions or properties influencing these perceptions have common characteristics and are either directive or interactive, or a combination of directive and interactive properties. The directive properties are defined as the rules, regulations, structures, standards and roles of an organisation. The interactives are the relationship-building dimensions such as communication, team work, conflict handling, recognition and involvement in the processes which determine work-related behaviour. The literature review showed clearly that both directives and interactives are present as measurable properties in organisations.

The conclusions that can be made from chapter 2 are:- (1) Though climate, supervisory support and team work measure different properties in the organisation, they combine to create a team building profile comprising both directive and interactive properties. (2) The properties are measurable and they determine the psychological atmosphere of the organisation. (3) The perceptions of these properties influence the behaviour and performance of an individual in the work place.

The properties of the team building profile were established, and this made possible the creation of the personality profile of the optimal functioning team member.

The second aim

The second aim, namely to create a salutogenic profile (sense of coherence, internal locus of control and self-efficacy) and the personality profile of the optimal functioning individual, was achieved in chapter 3.

The literature review, in **chapter 3**, identified the salutogenic paradigm and the salutogenic concepts which make up the salutogenic profile. This was well established

by Strümpfer (1990) and Antonovsky (Cooper and Payne, 1991). The relevant concepts are sense of coherence, internal locus of control and self-efficacy. Each of these personality orientations was found to have, by research, a slightly different theoretical basis.

The conclusion that can be made from Antonovsky's (1979) sense of coherence theory is that a person maintains a healthy state by making use of the generalised resistance resources available to him/her from the environment. These generalised resistance resources are present in the work place and in the form of the directive and interactive dimensions of team building. The effect that these generalised resistance resources have on the person will determine the level of his/her sense of coherence on the health ease/disease continuum.

The conclusion that can be made from Rotter's (1966) theory on locus of control is that a person's behaviour is determined by work outside of his/her control (external locus of control) or through the use of his/her own problem solving skills (internal locus of control). It has been established that when a person uses his/her own skills to determine outcomes, this enhances the positive behaviour of an individual. Internal locus of control also has a positive effect on the individual's performance. The reason for this is that the person makes use of his/her own resources and learns to cope, and has a sense of being in control.

The two determinants of an internal locus of control orientation are an environment which encourages the practice of "internal" behaviour, and the use of one's skills to cope with situations. The extent to which a person can control his/her environment, or be controlled by it, will determine whether or not the person is "internal" or "external".

The conclusion that can be made from Bandura's (1989) theory of self-efficacy is that the behaviour and the performance of an individual are determined by the judgment a person makes of his/her capabilities to perform a task. These judgments are based on the view the person has of his/her attributes, his/her past performance and the

likelihood that the person will be able to perform the task in the prevailing environment. This research supports the literature which shows that the work environment plays a significant role in determining one's level of self-efficacy and that belief in one's self-efficacy enhances one's level of performance.

The following conclusions can be made from the literature review:- (1) Salutogenesis determines the extent to which an individual is able to cope with stressors in the environment. (2) An optimal functioning individual can handle stressors in such a manner that they do not have a negative impact on his work. (3) He/she can function salutogenically and thus can live and work optimally.

The researcher found that the three concepts examined interrelated with one another, in terms of salutogenic strengths, to form a salutogenic profile. The properties of the profile were discussed and this proved that a personality profile of the optimal functioning individual does exist.

The third aim

The third aim, namely to create a work performance profile and the personality profile of the optimal performing individual, was reached in chapter 4.

The literature review, **in chapter 4**, indicated that a major challenge with performance measurement is for management and each subordinate to agree on performance measurement criteria. The establishment of such criteria should take into consideration both behavioural and outcome measurements, as both are equally important in performance measurement. Such criteria were used and developed in this research, based, as it was, on the requirements of the mining industry of South Africa, and of the needs of one mine in particular.

The research also established that self-appraisal is an acceptable method of performance appraisal and can be used fruitfully in conjunction with management-

subordinate appraisals. It is indeed a cognitive mediator between the individual's assessment of feedback he/she receives on his/her performance, the individual's self-efficacy, and his/her assessment of how he/she will perform in the future.

The literature, particularly that relating to self-efficacy, indicated that there is a strong relationship between self-efficacious beliefs, one's self-assessment of performance, and one's performance levels.

The conclusions that can be made from the literature review of chapter 4 are:-

(1) Performance criteria should be both behavioural and outcome related. (2) Self-appraisals are an acceptable method for rating one's levels of performance. (3) There is a relationship between the self-efficacious beliefs of an individual and his/her beliefs about his/her level of performance, where self-appraisal acts as a cognitive mediator between the two. The self-appraisal of performance is a significant concept in salutogenic thinking.

The fourth aim

The fourth aim, namely to integrate the three profiles into the performance model in this research and into the personality profile of the optimal functioning individual within the context of the performance model, was also reached.

From a review of the section of integration (refer to p 193) with its emphasis on the development of the performance model, two conclusions follow:

- (1) The concepts of the team building profile and of the salutogenic profile (incorporating the work performance profile) integrate well in the model.
- (2) The personality profile of the optimal functioning individual arises naturally and is seen clearly within the parameters of the performance model.

7.1.2 Conclusions regarding the empirical research

In chapter 6, the results of the empirical research were reported and interpreted. Conclusions will first be made about the team building profile, then about the salutogenic profile incorporating the work performance profile, and finally about the integration, indicating the relationships between the team building, salutogenesis and work performance.

The first aim

The first aim, namely to investigate the properties of the team building profile and the personality profile of the optimal functioning team member, was reached in chapter 6.

The team building profile was clearly confirmed as a unique construct, which has as its basis the incorporation of the three separate concepts namely organisational climate, supervisory support and team work. The reason for this is that there are significant correlations between the directive and interactive properties of these concepts. Thus there is sufficient empirical evidence to refer to the team building profile as a construct comprising directive and interactive properties. The conclusion is therefore made that the team building profile is a construct in its own right. The personality profile of the optimal functioning team member does exist.

The second aim

The second aim, namely to investigate the properties of the salutogenic profile and the personality profile of the optimal functioning individual was reached in chapter 6.

The results indicate that salutogenesis was clearly identified as a unique construct and has as its basis the incorporation of the three concepts, namely sense of coherence, internal locus of control and self-efficacy, into the construct. The relationships within the construct suggest that the well-being of an individual is based on his/her inner

strengths, whereby he/she is not only able to cope with the many stressors in life, but can also grow into an optimally functioning individual. The personality profile of the optimal functioning individual supports this notion. The empirical findings confirmed the salutogenic profile and the personality profile that fits this profile. Salutogenesis is a construct in its own right and an individual can possess this orientation.

The third aim

The third aim, namely to investigate the properties of the work performance profile and the personality profile of the optimal performing individual within the context of the salutogenic profile, was reached in chapter 6.

Work performance, through self-appraisal of performance, was also identified as a salutogenic concept, because of the strong relationship that it has with the other salutogenic concepts and self-efficacy in particular. It also forms part of the salutogenic construct. The rationale for this is that the more confident one feels about one's abilities to perform a given task, the more likely it is that one will succeed at that task. Hence self-appraisal of performance is inextricably linked to levels of self-efficacy. From the empirical findings, the work performance profile was confirmed, and the personality profile that fits this profile were created. The work performance profile which now forms part of the salutogenic construct, contributes to the overall salutogenic orientation in this research.

The fourth aim

The fourth aim, namely to integrate the properties of the team building, the salutogenic and the work performance profiles into the performance model and also to develop the personality profile of the optimal functioning individual within the context of the model was reached in chapter 6.

The empirical research found further that there is a significant relationship between the team building profile (incorporating directive and interactive properties of team building) and the salutogenic profile, incorporating self-appraisal of performance in the work performance profile. In this regard, the following should be noted. Sense of coherence and internal locus of control are directly influenced by the work environment . Self-efficacy is influenced indirectly by properties in the work environment, and this through the influence that the work environment has on sense of coherence and internal locus of control. These latter in themselves are significantly correlated with self-efficacy.

The integration of the team building profile and salutogenesis, in the empirical research, resulted in the empirical confirmation of the relationships between the constructs and the confirmation of the formation of the performance model. This supports the research hypothesis, that there is a relationship between team building, salutogenesis and work performance. The general conclusion is that there are significant relationships between team building, salutogenesis and performance.

7.1.3 Conclusions regarding the relationship between the literature review and the empirical research

From the conclusions reached in the literature review it is clear that one can refer to an optimal functioning individual which means an individual functioning on a salutogenic level in his/her own right, as a team member and as a performer. Salutogenic functioning, however, is a result of an optimal team building profile in the work place. There is therefore a relationship between the two constructs whereby optimal team building forms a direct relationship with salutogenic functioning.

In the conclusions reached in the empirical research, it was shown that there is a direct relationship between the two constructs of the team building profile (incorporating directive and interactive properties) and salutogenesis, of which self-appraisal of performance (work performance) forms part of the salutogenic construct. The two constructs are independent, yet have a significant relationship with one another in terms

of influencing an individual's functioning and performance. The performance model based on this relationship can therefore be verified.

It appears from both the literature review and the empirical research that the constructs are different, although there is a relationship between the two of them. The conclusion can be made that the team building profile construct has a separate standing from the salutogenic construct. These two constructs, however, are also significantly related to one another, as determined by **both** the literature and empirical research. The integration of the empirical profiles with the literature profiles shows how team building affects salutogenesis and work performance, so much so, that they are virtually one and the same thing.

COMMENT

Herewith the research hypothesis is confirmed, namely:

There is a relationship between the worker's team building profile, his/her salutogenic profile and his/her work performance profile.

7.2 RECOMMENDATIONS

Recommendations are made firstly regarding the findings of this research, and secondly regarding further research on the subject.

7.2.1 Recommendations relating to the relationships between team building, salutogenesis and work performance for industrial psychology

The research shows that team building and salutogenesis (incorporating self-appraisal of performance) are two separate constructs with strong relationships. It is important that the industrial psychologist understands the basis of these relationships particularly as they relate to the psychological optimality of the individual and his/her performance.

By so doing the industrial psychologist will strengthen his/her skills as a change agent in organisations.

As a change agent in team building the industrial psychologist needs to understand the underlying dimensions (directive and interactive) in the team building process and that team building affects the behaviour and performance of an individual. Before embarking on any team building intervention the dimensions need to be clearly identified in order to understand their impact on the individual and his/her performance in the organisation. Therefore, the industrial psychologist needs to apply suitable diagnostic measurements to measure the perceptions of individuals in respect of these dimensions. It is important too, to realise that the impact of the individual's perceptions can have a significant impact on his/her health, the individual's behaviour and the results the person is likely to achieve in his/her work. The industrial psychologist must fully comprehend these implications.

The relationships that team building has with salutogenesis can assist the industrial psychologist in identifying which behaviours of the individual are likely to be affected in either a positive or a negative way. In this regard one's sense of coherence can be related to aspects of team building. The extent to which a person can cope and manage his/her situation is related to the support and resources available from the supervisor at work. The extent of one's understanding and ability to predict events at work are related to the existence of rules, policies, procedures and standards in the organisation. The meaning that one derives from work is related to the dimensions in team building that impact on communication, co-operation and relationships which the individual perceives to exist with his/her colleagues. The industrial psychologist must identify and understand these relationships.

He/she ought to recognise that team building has an influence on a person's locus of control. It has been established that a person with a high internal locus of control has a more positive attitude to work, has a higher need for achievement and is likely to perform better at work than a person with high external locus of control. Optimal team

building will develop a person's internal locus of control by encouraging the person to use his/her initiative, to accept responsibility for his/her work, and to take control over situations that affect his/her performance.

Furthermore, the industrial psychologist should realise that optimal team building enables a person to work in a self-efficacious manner. The person is able to exercise his/her capabilities and to set goals in an environment which supports and recognises successful behaviour. As a result the person believes that he/she is capable of performing optimally. The more the individual receives positive feedback about his/her performance the more enhanced is the level of self-efficacy and the more likely the person will achieve more challenging goals in the future.

The performance model is regarded as a powerful diagnostic and behavioural change system which should be used by industrial psychologists where they are facilitating learning about change leading to the improved behaviour and performance of an individual in an organisation. However, they need to fully understand the concepts that comprise the model so that they can make an appropriate diagnosis of the situation and apply the appropriate change interventions to enable an individual to cope, develop and perform optimally.

There are other recommendations pertaining to the use of the performance model that can assist in the task of the industrial psychologist.

- a) The model can assist in performance management interventions. The basis of performance management is to ensure that an individual understands his/her role, the criteria against which his/her performance will be measured and how he/she will be rewarded for successful performance. The industrial psychologist needs to understand that these variables relate to one another, and that they do have an impact on an individual's initiative, feelings of satisfaction and confidence, together with the person's ability to perform optimally. Further, he/she can make a significant contribution to the successful implementation of

performance management systems if he/she has a good working knowledge of the performance model and the personality profile of the optimal functioning individual.

- b) A knowledge of the dynamics of the performance model can assist the industrial psychologist with the training and development of an individual. An examination of the relationships between team building, salutogenesis and work performance often exposes weaknesses in an individual that need to be addressed; and these can only be rectified through the appropriate upgrading of an individual's skills and competencies. The industrial psychologist should recommend the appropriate training based on the specific identified needs for the individual.
- c) There are possibilities for using research into psychological optimality and optimal team building in selection and recruitment. This is particularly relevant where the industrial psychologist recommends an individual for appointment to the position of leadership in the organisation. The leader or supervisor has a marked impact on the team building climate and as such has an influence on the behaviour and performance of an individual. It is, therefore, important that the person selected for the leadership position has the appropriate qualities that will enhance the team building process in the organisation.
- d) Application of the principles embodied in the performance model can influence the career development of an individual. The industrial psychologist should ensure that each person in the organisation is afforded the opportunity to develop his/her skills so that he/she can move into positions of greater responsibility. The impact that effective team building has on the optimality of an individual in the work situation should be considered by the industrial psychologist involved with career development programmes.

- e) The performance model ought to be used by industrial psychologists in organisation development programmes where the aim is to enhance the work behaviour and the performance of an individual. In this regard interventions can be applied which address the specific requirements of the individual and the organisation. Such interventions can include role clarification, management by objectives, strategic leadership, organisational design, reward systems and team work facilitation. In such instances, the psychologists who understands the working of the performance model will play a very useful role as the organisational change agent.

- f) Industrial psychologists ought to make use of the performance model to improve the work behaviour and the performance of an individual in the mining industry. The mining industry in South Africa has in the past been characterised by a management style which has tended to be autocratic and paternalistic. The rules, regulations and standards at the workplace have been well established and implemented, and whilst this has been necessary to ensure good safety standards, the interactive processes between management and the workforce have been largely neglected. Management's approach has been directive rather than interactive. The challenge for industrial psychology is to ensure that a balance is maintained between the directive and the interactive dimensions for optimal team building on the mines.

- g) The performance model establishes a new way of thinking for the top leaders of organisations which will serve them well in their pursuit and drive for new business into the next century with first world economies. The industrial psychologist, applying the theory of the performance model, can play an important role in working alongside top management in assisting with the realisation of this objective.

- h) The industrial psychologist has an important role to play in the team building by ensuring that the appropriate human resources systems are in place, and are

properly applied. Such systems should relate to job descriptions, job evaluation, benefits and remuneration policies, communication structures, industrial relations procedures and performance appraisals. These enhance an individual's perception of the directive and interactive dimensions of team building.

7.2.2 Recommendations regarding further research

Recommendations on how the research on the performance model can be improved and extended are given below:

- Subsequent work by the researcher using the model in other mining organisations has suggested some improvements to the measuring instruments and techniques. The Kobasa hardiness questionnaire (1982) has been added to the three salutogenic measurements with favourable results. The measurement of hardiness adds to the measurement of the salutogenic strengths and provides useful additional information for analysis. Furthermore, the team work questionnaire has been successfully replaced by the Varney teamwork survey (1989) which is a very useful measurement of the properties of team work.
- The results of each individual's responses should be used for individual feedback sessions in order to obtain qualitative data, thus enhancing the usefulness of the results. In this regard the researcher has already developed a normative data base for the measuring instruments applicable to the mining industry against which an individual's raw data responses can be compared.
- Future measurements should include measurements of skills and competencies as these are important variables in the salutogenic construct and these were not measured in this research. The measurement of skills and competencies of the individual would enrich the performance model and would make it a

formidable diagnostic and change management technique.

- In order to rigorously measure performance of an individual, hard data performance measures for each individual should be included and used to supplement performance measurements using self-appraisals. This would enhance the performance measurement aspect of the model and strengthen the model.
- The administration of this specific battery of questionnaires takes approximately three and a half hours to complete. It would be useful to devise and standardise a shortened version of the questionnaires which takes less time to complete but which does not compromise on the reliability and validity of the instruments.

COMMENT

With the above the final aim of the research has been achieved, namely the formulation of recommendations for industrial psychology based on the findings of the research.

7.3 SHORTCOMINGS OF THE RESEARCH

Although every attempt has been made in this research to implement the research design and research methodology as thoroughly as possible (refer to 1.6 and 1.7) there are nevertheless two perceived shortcomings. They are:

- (1) In this research no measurements were carried out on skills and competencies which are very important variables in the development of a sense of coherence, internal locus of control and self-efficacy. Antonovsky, Rotter and Bandura all make reference to the importance of skills in the development of their particular personality orientations. This however, did not impact on the results of the research, as far as could be ascertained from a subjective viewpoint.

- (2) An understanding of the items in the measuring instruments requires literacy levels of at least standard eight or above. It is therefore not possible to administer the questionnaires to individuals whose literacy levels are lower than standard eight. Research on the comprehensibility of these concepts for other target groups can be done.

7.4 CHAPTER SUMMARY

In this chapter, consideration was given to the conclusions of the results of the research; firstly with regard to the literature review, then the empirical research, and finally to the relationships between the literature and the empirical findings. Thereafter, recommendations were made with regard to the relationships between an optimal team building profile and salutogenesis, firstly in respect of the field of industrial psychology, and secondly in respect of further research. The chapter finally mentioned two shortcomings in the research methodology.

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APPENDIX 1

Item-test correlations and the Cronbach alpha coefficients of the questionnaires

1) The climate questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1	Decision making effective	0.48	0.87
2	Jobs logically structured	0.45	0.87
3	Require clarification of job	0.13	0.87
4	Organisation sets high standards	0.40	0.87
5	Subordinate encouraged to discuss ideas	0.51	0.86
6	Informed how well you're doing	0.46	0.87
7	Able to get information	0.45	0.87
8	My work group helps me	0.41	0.87
9	Management doesn't over-check	0.10	0.87
10	Good system of promotion	0.54	0.86
11	Able to exercise skills	0.46	0.86
12	Concerned grievances not resolved	-0.37	0.88
13	Working conditions encourage me to stay	-0.46	0.88
14	Have say how to improve job	0.57	0.86
15	Able to influence superiors decisions	0.44	0.87
16	Necessary authority for responsibilities	0.39	0.87
17	Work-group clear about goals	0.44	0.87
18	Superior insists on high standards	0.39	0.87
19	Encouraged to sort out arguments	0.53	0.86
20	Superior gives guidance	0.48	0.87
21	I am informed about work situations	0.63	0.86
22	Work-group listens to opinions	0.47	0.87
23	Individual judgement not relied on	0.12	0.87
24	Satisfaction with remuneration	0.29	0.87
25	I enjoy my work	0.34	0.86
26	Concerned about opportunities for promotion	-0.27	0.88
27	Same pay for same work at another company	-0.45	0.88
28	I can bring new ideas to my job	0.58	0.86
29	Decisions made without consultation	0.27	0.87
30	Are you sure who your boss is?	0.40	0.87

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
31	Clear about how to do job	0.43	0.87
32	Follow standard policies and procedures	0.36	0.87
33	Are you satisfied how arguments are resolved	0.39	0.87
34	Supervisor plans and co-ordinates	0.52	0.87
35	Communication channels are adequate	0.47	0.87
36	Feelings pull work group apart	0.31	0.87
37	Can you decide on work methods	0.42	0.87
38	People rewarded according to performance	0.41	0.87
39	Is there sufficient variation in the job	0.40	0.87
40	Worried I cannot influence decisions	-0.32	0.88
41	Would you re-apply for a job here	-0.42	0.88
42	I help set targets	0.46	0.87
43	Decisions are made at correct levels	0.56	0.86
44	Clarity on formal authority for decisions	0.30	0.87
45	Clear about what to do in job	0.54	0.86
46	Colleagues try to upgrade standards	0.41	0.87
47	Arguments are avoided and worked through	0.38	0.87
48	Supervisor maintains high standards	0.49	0.87
49	Told about satisfaction with my work	0.48	0.87
50	People look after their own interests	0.38	0.87
51	I check everything rather than delegate	0.20	0.87
52	Credit is given when due	0.55	0.86
53	I am misplaced in my job	0.25	0.87
54	Worried do task against better judgement	-0.30	0.88
55	I wish to leave the Company	-0.49	0.88
56	Profit and production goals clearly explained	0.45	0.87
57	Decisions made too slowly	0.31	0.87
58	Productivity suffers lack of planning	0.45	0.87
59	Clear about limits of authority	0.42	0.87
60	Standards are realistic to achieve	0.34	0.87
61	No constructive criticism in job	0.40	0.87
62	Supervisor clearly informed	0.39	0.87
63	No meaningful upward communication	0.35	0.87
64	Departments keep each other informed	0.35	0.87
65	Excessive rules prevent new ideas	0.16	0.87
66	Reward and encouragement emphasised	0.36	0.87
67	Are you satisfied with the job	0.45	0.87
68	I feel under pressure	-0.17	0.87
69	Do you like working here	-0.53	0.88

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
70	My opinion is asked to improve profits	0.44	0.87
	Number of items in scale	70	
	Cronbach's alpha	0.87	

2) The supervisory support questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1	Does supervisor understand your needs	0.52	0.96
2	Can you rely on him to help you	0.68	0.96
3	Is your opinion taken into account	0.55	0.96
4	Does supervisor help adjust objectives	0.65	0.96
5	Does supervisor help overcome obstacles	0.80	0.96
6	Does supervisor give time to discuss issues	0.72	0.96
7	Does supervisor listen to you	0.80	0.96
8	Does supervisor give you assistance	0.83	0.96
9	Does he ensure high standards	0.68	0.96
10	Is supervisor approachable	0.73	0.96
11	Is he included in your ideas	0.76	0.96
12	Does he take your opinion into account	0.79	0.96
13	Does supervisor obtain resources for you	0.74	0.96
14	Does he make knowledge and skills available	0.77	0.96
15	Does supervisor give adequate advice	0.80	0.96
16	Does supervisor show he cares	0.75	0.96
17	Does supervisor provide guidance	0.84	0.96
18	Does supervisor give you sufficient information	0.74	0.96
19	Does he give you regular feedback	0.62	0.96
20	Does he assist you in scheduling work	0.63	0.96
21	Does he keep you informed of new plans	0.65	0.96
22	Does supervisor ensure you have sufficient skills	0.75	0.96
	Number of items in scale	22	
	Cronbach's alpha	0.96	

3) The team work questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1	We are told when we act correctly	0.36	0.82
2	Good upward feedback to management	0.56	0.81
3	Information about changes are explained	0.59	0.81
4	Employees told where mine is going	0.11	0.85
5	Employees informed about changes	0.46	0.82
6	Employees get feedback from management	0.49	0.82
7	Team members praised for good work	0.58	0.81
8	Employees get up-to-date information about mine	0.41	0.82
9	Feedback system gives answers to problems	0.58	0.81
10	Employees from different depts help each other	0.59	0.81
11	Information about production costs explained	0.53	0.81
12	Different departments help each other	0.59	0.81
13	Involved in discussions to sort out problems	0.57	0.81
14	I receive correct information about mine	0.14	0.85
15	Improved co-operation	0.49	0.82
16	We rely on each other for help	0.47	0.82
17	Positive feelings amongst team members	0.48	0.82
	Number of items in scale	17	
	Cronbach's alpha	0.83	

4) The sense of coherence questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1	Do people understand you	0.29	0.85
2	Have you had co-operation in the past	0.30	0.85
3	How well do you know others	0.18	0.85
4	Do you care what goes on around you	0.35	0.84
5	Surprised by behaviour of others you know well	0.17	0.85
6	Those you counted on disappointed you	0.23	0.85
7	Life is interesting/routine	0.48	0.84
8	Life has clear/unclear goals	0.44	0.84
9	Feeling of being treated unfairly	0.30	0.85
10	In the past life has been changing/constant	0.30	0.85
11	Events in the future will be interesting/boring	0.36	0.84
12	Do you feel you are in unfamiliar situations	0.43	0.84
13	Solutions for painful things	0.36	0.84
14	Life if good/bad	0.45	0.84
15	Choices for difficult problems are confusing/ clear	0.47	0.84
16	Everyday events are pleasurable/boring	0.38	0.84
17	Life in the future will be changing/consistent	0.30	0.85
18	You've handled unpleasant events well/poorly	0.35	0.84
19	Are your ideas mixed up/clear	0.62	0.84
20	Good feelings will continue/turn sour	0.48	0.84
21	Experience feelings you would rather not have	0.39	0.84
22	My future life will have meaning/no meaning	0.50	0.84
23	People you can count on	0.26	0.84
24	Not sure what's about to happen	0.47	0.84
25	Feel like a loser	0.36	0.84
26	See things in the correct perspective	0.33	0.84
27	Feel about important events	0.33	0.84
28	Meaning of things in daily life	0.52	0.84
29	Being able to control feelings	0.48	0.84
	Number of items in scale	29	
	Cronbach's alpha	0.85	

5) The I-E Locus of Control questionnaire(excluding filler items)

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
2	Misfortunes result from mistakes/bad luck	0.16	0.65
3	Reasons for wars; controllable	0.20	0.65
4	People respect; controllable	0.26	0.64
5	Students' marks based on hard work	0.33	0.63
6	Leadership based on capability or opportunities	0.14	0.65
7	How people get along with you	0.10	0.66
9	Taking a decision or leaving to fate	0.20	0.65
10	Examination fairness and hard work	0.19	0.65
11	Success is hard work or opportunity	0.30	0.64
12	Does the citizen have an influence in government?	0.26	0.64
13	Planning or good fortune determines results	0.28	0.64
15	Results as a factor of luck	0.30	0.64
16	Promotion as a factor of hard work or the right place	0.35	0.63
17	The state of the world and its control by people	0.32	0.63
18	Everyday happenings as a function of luck	0.19	0.65
20	Friendship with others is dependent on yourself	0.10	0.66
21	In the long run misfortunes are caused by chance or lack of ability	0.29	0.64
22	Political corruption and its control	0.22	0.64
23	Exam marks as a function of hard work or luck	0.24	0.64
25	The function of control and everyday happenings	0.26	0.64
26	Friendship a function of hard work or luck	0.27	0.64
28	Everyday life is function of our control over it	0.31	0.64
29	Citizens are responsible for the politicians that are elected	0.03	0.66
	Number of items in scale	23	
	Cronbach's alpha	0.65	

6) The Self-Efficacy questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1	Extremely unpleasant to be afraid	0.10	0.80
2	Avoiding difficult tasks	0.31	0.78
3	A determined person	0.31	0.78
4	Setting mind on task to achieve	0.35	0.78
5	Have a lot of self confidence	0.50	0.77
6	At best when challenged	0.43	0.78
7	Shameful to give up	0.31	0.78
8	More than average self-determination	0.53	0.77
9	Some things not worth the effort	0.13	0.79
10	Avoiding things not good at	0.36	0.78
11	More fear than most people	0.39	0.78
12	Difficult to take risks	0.30	0.78
13	People have problems which they can solve	0.15	0.79
14	Succeeding at almost anything	0.49	0.76
15	Nothing is impossible	0.55	0.77
16	Rely on oneself for a solution	0.11	0.79
17	Remaining true to one's ideals	0.46	0.78
18	One can make it in this world	0.50	0.77
19	I can achieve my goals	0.51	0.77
20	If at first no success, keep trying	0.50	0.78
21	Getting what you want by trying harder	0.54	0.78
22	Excelling at few things	0.32	0.78
23	Burning midnight oil to complete a task	0.34	0.78
24	More willpower than most	0.46	0.76
25	Frustrated by physical discomfort	0.10	0.80
26	Not worth subjecting myself to pain	0.12	0.80
27	Endure physical discomfort to finish a task	0.39	0.78
	Number of items in scale	27	
	Cronbach's alpha	0.79	

7) The Self-Appraisal questionnaire

Item No	Abbreviated description	Corrected item - total correlation	Alpha if item deleted
1.1	Utilisation of safety equipment	0.50	0.95
1.2	Injury rate	0.21	0.96
1.3	Conducting safety meetings	0.42	0.95
2.1	Quality of work	0.72	0.94
2.2	Quantity of work	0.75	0.94
3.1	Scheduling of work	0.71	0.94
3.2	Prioritising of tasks	0.71	0.94
4.1	Utilisation of labour	0.63	0.94
4.2	Utilisation of material	0.65	0.94
5.1	Checking/inspection	0.74	0.94
5.2	Feedback to subordinates	0.67	0.94
6.1	Knowledge of standards	0.75	0.94
6.2	Application of standards	0.76	0.94
7.1	Job knowledge	0.73	0.94
7.2	Skills to do the job	0.72	0.94
7.3	Ability to do the job	0.75	0.94
8.1	Budgeting effectiveness	0.75	0.94
8.2	Costing effectiveness	0.77	0.94
9.1	Co-operation with others	0.67	0.94
9.2	Communication	0.70	0.94
9.3	Conflict handling	0.65	0.94
10.1	Willingness to do extra work	0.72	0.94
10.2	Positive work attitude	0.70	0.94
10.3	Rewarding subordinates	0.59	0.94
	Number of items in scale	24	
	Cronbach's alpha	0.95	

APPENDIX 2

The variables, means, standard deviations and the range of scores for the questionnaires

Variable	Descriptive label	Mean	Std Dev	Minimum	Maximum
FACTEN1	Self appraisal	6.97	1.10	3.50	8.96
FACTAN1	Comprehension	4.51	0.77	2.64	6.45
FACTAN2	Manageability	4.89	0.74	2.70	6.70
FACTAN3	Meaningfulness	5.58	0.83	2.50	7.00
FACTAN4	SOC total	4.93	0.66	2.69	6.55
FACTBA1	Self-efficacy	2.66	0.57	1.26	5.37
FACTTR1	Teamwork	3.68	0.88	1.00	5.00
FACTTR2	Sharing of information	3.34	0.78	1.00	5.00
FACTTR3	Co-operation between teams	3.26	0.95	1.00	5.00
FACTTR4	Feedback/Recognition	2.95	0.80	1.17	5.00
FACTTR5	Teamwork total	3.25	0.69	1.59	5.00
FACTRO1	Internal locus of control	8.70	3.46	1.00	18.00
FACTGS1	Information support	3.70	0.84	1.00	5.00
GASTGS2	Appraisal support	3.57	0.77	1.00	5.00
FACTGS3	Instrumental support	3.58	0.84	1.38	5.00
FACTGS4	Emotional support	3.71	0.87	1.17	5.00
FACTGS5	Supervisory support total	3.64	0.79	1.23	5.00
FACTOC1	Decision making	2.83	0.71	1.00	4.80
FACTOC2	Job & organisation structure	3.42	0.75	1.60	5.00
FACTOC3	Role clarity	3.81	0.69	1.60	5.00
FACTOC4	Job standards	3.78	0.65	1.60	5.00
FACTOC5	Conflict handling	3.13	0.81	1.20	4.60
FACTOC6	Supervisor effectiveness	3.77	0.79	1.20	5.00
FACTOC6	Communication	3.22	0.74	1.40	4.80
FACTOC8	Team building	3.12	0.70	1.60	4.80
FACTOC9	Responsibility	2.93	0.56	1.20	5.00
FACTOC10	Reward	2.39	0.96	1.00	5.00
FACTOC11	Job satisfaction	3.80	0.79	1.20	5.00
FACTOC12	Job tension	3.11	0.59	1.60	4.60
FACTOC13	Propensity to leave	2.77	0.96	1.00	5.00
FACTOC14	Contribution to Co. profits	3.42	0.84	1.40	5.00

THE MEASUREMENT SCALES FOR MINE HARD DATA RESULTS

PERFORMANCE MEASUREMENT Factor allocation - Production

TONS HAULED

1	2	3	4	5	6	7	8	9
-26 to -30	-21 to -25	-16 to -20	-11 to -15	-6 to -10	-1 to -5	0	+1 to +5	+6 to +10

ADVANCE/CUT

1	2	3	4	5	6	7	8	9
1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6

TONS/BLAST

1	2	3	4	5	6	7	8	9
45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89

EXPLOSIVES EFFICIENCIES

1	2	3	4	5	6	7	8	9
70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to 99	100 to 104	105 to 109	110 to 114

THE MEASUREMENT SCALES FOR MINE HARD DATA RESULTS

PERFORMANCE MEASUREMENT Factor allocation - Engineering & Costs

MACHINE AVAILABILITY U/G & S/F

1	2	3	4	5	6	7	8	9
55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95 - 100

COST R/TON HAULED & PRODUCED

1	2	3	4	5	6	7	8	9
26 to 30	21 to 25	16 to 20	11 to 15	6 to 10	1 to 5	0	-1 to -5	-6 to -10

THE MEASUREMENT SCALES FOR MINE HARD DATA RESULTS

PERFORMANCE MEASUREMENT

Factor allocation - Safety

FATALITIES/REPORTABLES

1	9
1+	0

LOST TIME INJURIES

1	2	3	4	5	6	7	8	9
8	7	6	5	4	3	2	1	0

INJURY SHIFTS LOST

1	2	3	4	5	6	7	8	9
14	13	12	11	10	7-9	4-6	2-3	1

THE MEASUREMENT SCALES FOR MINE HARD DATA RESULTS

PERFORMANCE MEASUREMENT

Factor allocation - Industrial Relations

DISCIPLINARY CASES

1	2	3	4	5	6	7	8	9
80	75	70	65	60	54	49	44	39

DISCHARGES

2	4	6	8	9
6	5	4	3	2

APPENDIX 4

The Organisation Climate questionnaire

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1. Do you think decision-making in this organisation is effective?
Dink u besluitneming in die organisasie is effektief?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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2. Jobs in this organisation are logically structured and clearly defined.
Die postestruktuur in die organisasie is logies en duidelik afgebaken.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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3. Do you require clarification regarding the main aims of your job?
Het u opheldering nodig betreffende die hoof oogmerke van u pos?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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4. This organisation sets high performance standards.
Die organisasie stel ho werkverrigting standarde.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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5. Are subordinates encouraged to discuss their own ideas even if they differ from their superior's ideas?
Word ondergeskiktes aangemoedig om hulle ides te lig, al verskil dit van die van hulle hoofde?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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6. Are you regularly informed by your supervisor of how well you are doing in your job?
Lig u opsiener u gereeld in oor hoe goed u werk doen?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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7. Are you able to get all the information required to carry out your job function properly?
Kan u al die inligting kry wat nodig is om u werkfunksie behoorlik te vervul?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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8. My work group actively assists me to arrive at solutions to problems.
My werksgroep help my daadwerklik om oplossings vir probleme te vind.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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9. Management does not encourage constant checking: if you think you have got the right approach, you can go ahead.
Bestuur moedig nie gereelde toetsing aan om na te gaan of jy kan voortgaan, as you dink you benadering is reg nie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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10. The promotion system in this organisation ensures that the most competent people are promoted.
Die stelsel van bevordering in die organisasie verseker dat die mees bekwame mense die top bereik.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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11. Are you able to exercise your special skills and abilities in your job?
Kan u, u besondere vaardighede en vermoens ten volle benut in u werk?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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12. Are you worried that your grievances and problems are not sorted out properly and fairly?

Is jy bekommerd dat jou besware en probleme nie regverdig sal uitgesorteer word nie?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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13. Existing working conditions and facilities encourage employees to stay with the company.

Bestaande werkomstandighede en geriewe moedig werknemers aan om by die maatskappy te bly.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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14. I am given the opportunity to say how I can improve my job to achieve better results for the company.

Ek word die geleentheid gegee om te s how ek my werk kan verbeter om sodoende beter resultate vir die maatskappy te bewerkstellig.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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15. Are you able to influence decisions and actions that affect you?

Is dit moontlik vir u om 'n invloed uit te oefen op besluite en optredes wat u raak?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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16. Do you have the necessary authority to carry out the responsibilities assigned to you?

Het u die nodige gesag om die verantwoordelikhede uit te voer wat aan u opgedra is?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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17. Is your work group generally clear about what has to be accomplished?

Is dit wat bereik moet word oor die algemeen vir u werkgroep duidelik?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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18. Does your supervisor insist on high performance standards in all work that is done?

Dring u hoof aan op ho werkverrigting in alles wat gedoen moet word?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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19. We are encouraged to confront and sort out arguments and disagreements.
Ons word aangemoedig om verskille en argumente te bespreek en te besleg.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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20. Does your supervisor give you guidance and assistance when you need it?
Gee u opsiener u leiding en bystand wanneer u dit nodig het?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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21. I am generally kept in the picture about what is going on in the work situation.

Ek word oor die algemeen goed ingelig oor wat in die werksituasie aangaan.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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22. My work group generally listens to everyone's opinion.
My werksgroep luister oor die algemeen na almal se menings.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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23. Individual judgement is not relied on in this organisation - almost everything requires someone else's approval or is double checked.

In die organisasie word nie op individuele oordeel staat gemaak nie - byna alles het altyd iemand anders se goedkeuring nodig.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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24. In relation to what you think you should be paid, are you satisfied with your remuneration package?

Is u, in verhouding met wat u dink u betaal behoort te word, gelukkig met u vergoedingspakket?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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25. I enjoy doing the work that I'm expected to do.

Ek geniet dit om die werk te doen wat van my verwag word.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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26. I am concerned about not knowing what opportunities for advancement are open to me.

Dit pla my dat ek nie bewus is van watter bevorderingsgeleenthede vir my bestaan nie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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27. If you had the chance to do the same kind of work for the same pay in another company, would you stay here?

As u die geleentheid sou kry om dieselfde werk teen dieselfde salaris in 'n ander maatskappy te doen, sou u hier bly?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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28. I am permitted to bring new ideas to my job which would improve the results of the company.

Ek word toegelaat om nuwe ides by my werk toe te voeg om die resultate van die maatskappy te verbeter.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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29. Decisions are often taken without those affected being consulted.

Besluite word dikwels geneem sonder dat die wat daardeur geraak word, daaroor geraadpleeg word.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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30. Would you say that on some of the work you have done you were not exactly sure who your boss was?
 Sou u s dat daar geleenthede was dat u werk moes doen en u nie geweet het wie u baas was nie?

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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31. Are you always as clear as you would like to be about HOW you are supposed to do things in your job?
 Is dit altyd so duidelik soos u graag sou wou h dit moet wees, HOE u veronderstel is om dinge in u werk te doen?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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32. Around here, people do not bother to follow standard policies and procedures.
 Hier rond, doen mense nie die moeite om standaard beleid en prosedures te volg nie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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33. Most jobs involve upsetting other people at some stage or another. When this happens to you, are you generally satisfied with the outcome of these situations?
 In die meeste werksituasies word mense die een of ander tyd ontstel. As dit met u gebeur, is u tevrede oor hoe hierdie situasies opgelos word?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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34. Does your supervisor plan and co-ordinate?
 Beplan en kordineer u opsiener?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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35. In this organisation communication channels are adequate for informing others of important facts in the work situation.

In hierdie organisasie is die kommunikasieskanale goed genoeg om ander in te lig oor belangrike feite aangaande die werksituasie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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36. There are feelings and views among members of my work group that tend to pull it apart.

Daar is gevoelens en menings onder lede van my werksgroep wat dreig om die groep te skeur.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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37. Are you generally allowed to decide what work method to use in your job?
Word u oor die algemeen toegelaat om self te besluit oor u werkm metode?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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38. In this organisation, people are rewarded according to the excellence of their performance.

In die organisasie word mense beloon volgens die voortreflikheid van hulle werkverrigting.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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39. Does sufficient variation exist in your job to ensure interest?

Is daar genoeg verskeidenheid in u werk om u belangstelling te bly prikkel?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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40. Are you worried that you are not able to influence your supervisors' decisions that affect you?

Is jy bekommerd dat jou invloed geen uitwerking sal h, wanneer jou superintendent besluite oor jou sal neem nie?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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41. If you had to stop working for a while (for whatever reason) would you reapply for a job here?

As u (om watter rede ookal) 'n ruk lank moet ophou werk, sal u weer aansoek doen vir 'n werk hier?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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42. I am given a say in helping set my section's targets and therefore I am keen to achieve them.

Ek het 'n s in die daarstelling van my seksie se doelwitte en daarom is ek gretig om dit te bereik.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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43. Are decisions made at those levels where the most accurate and adequate information is available?

Word besluite op daardie vlakke geneem waar die mees korrekte en genoegsame inligting beskikbaar is?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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44. In this organisation it is always clear who has the formal authority to take a decision.

In die organisasie is dit altyd duidelik wie die formele gesag het om 'n besluit te neem.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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45. Do you feel you are always as clear as you would like to be about WHAT you have to do in your job?

Is dit altyd so duidelik soos wat u graag sou wou h dit moet wees, WAT u in u werk behoort te doen?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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46. Work group colleagues generally try to upgrade job standards.

Werksgroep kollegas probeer oor die algemeen om werkstandaarde te verhoog.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
--------------------------------	----------------------------	--	-------------------------------	-----------------------------------

47. Tick the appropriate block
Merk die toepaslike blokkie

Disagreements are/Verskille word:

almost always avoided, denied, suppressed
byna-altyd vermy, ontken, onderdruk

often avoided, denied or suppressed
dikwels vermy, ontken or onderdruk

sometimes accepted and worked through, sometimes suppressed/soms aanvaar en uitgestryk, soms vermy en onderdruk

usually accepted as necessary and desirable and worked through/gewoonlik aanvaar as nodig en gewens en uitgestryk

almost always accepted as necessary and desirable and worked through/byna altyd aanvaar as nodig en gewens en uitgestryk

48. Does your supervisor set and maintain high performance standards?

Stel en handhaaf u opsiener ho standaarde van werkverrigting

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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49. I am generally kept informed about whether my work is satisfactory or not.

Ek word oor die algemeen ingelig of my werk bevredigend is of nie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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50. People in this organisation pretty much look after their own interests, even if to the detriment of others.

Mense in hierdie organisasie sorg meesal net vir hulleself, al is dit tot die nadeel van ander.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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51. I feel I should check everything out rather than delegate responsibility down the line.

Ek reken ek behoort alles self na te gaan, eerder as om verantwoordelikheid na onder to delegeer.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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52. In this organisation credit is given where credit is due.

In hierdie organisasie word erkenning gegee aan die wat erkenning regverdig.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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53. I feel I am misplaced in my present job.
Ek dink nie ek pas in my huidige werk nie.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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54. Do you often feel bothered by feeling that you have to do tasks which are against your better judgement?
Kwel die gevoel u dikwels dat u sekere take moet verrig teen u beter wete?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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55. I frequently consider leaving the company.
Ek oorweeg dit dikwels om die maatskappy te verlaat.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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56. The production cost and profit goals of my work section have been clearly explained to me.
My seksie se produksiekostes en profytdoelwitte is duidelik aan my verduidelik.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
--------------------------------	----------------------------	--	-------------------------------	---

57. Decisions are made too slowly in this organisation because of all the levels of authority and the resulting paperwork involved.
In hierdie organisasie is besluitneming te stadig vanwee al die outoriteitsvlakke en die gevolglike klomp papierwerk.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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58. Productivity suffers because of lack of organisation and planning.
 Produktiwiteit ly vanwee 'n gebrek aan organisasie en beplanning.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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59. Are you clear about the limits of authority in your present job?
 Is dit vir u duidelik waar u gesag ophou in u huidige werk?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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60. Around here, standards which are set are realistic to achieve.
 Hier word standaarde gestel wat realisties bereikbaar is.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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61. In my work group there is no constructive criticism, it is all destructive.
 In my werksgroep is die kritiek nie opbouend nie, maar altyd afbrekend.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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62. My supervisor is generally informed about work that is going on.
 My opsiener is oor die algemeen ingelig oor die werk wat geoden word.

Definitely true Beslis waar	Mostly true Meesal waar	Neither true nor false Nie waar of onwaar nie	Mostly false Meesal onwaar	Definitely false Beslis onwaar
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63. There is no meaningful upward communication in this organisation, most communication is from the top down.

In hierdie organisasie is daar geen betekenisvolle kommunikasie nie. Die meeste kommunikasie is van bo na onder.

Definitely true	Mostly true	Neither true nor false	Mostly false	Definitely false
Beslis waar	Meesal waar	Nie waar of onwaar nie	Meesal onwaar	Beslis onwaar

64. In this organisation departments generally keep one another informed of their plans and co-ordinate efforts.

In hierdie organisasie hou afdelings mekaar ingelig oor hulle onderskeie planne en kordineer hulle pogings.

Definitely true	Mostly true	Neither true nor false	Mostly false	Definitely false
Beslis waar	Meesal waar	Nie waar of onwaar nie	Meesal onwaar	Beslis onwaar

65. How true is it that excessive rules and administrative details prevent new and original ideas from emerging?

Hoe waar is dit dat buitensporige reëls en administratiewe besonderhede dit onmoontlik maak vir nuwe en oorspronklike idees om na vore te kom?

Definitely true	Mostly true	Neither true nor false	Mostly false	Definitely false
Beslis waar	Meesal waar	Nie waar of onwaar nie	Meesal onwaar	Beslis onwaar

66. In this organisation reward and encouragement are emphasised rather than criticism.

In hierdie organisasie word eerder klem gelê op beloning en aanmoediging as op kritiek.

Definitely true	Mostly true	Neither true nor false	Mostly false	Definitely false
Beslis waar	Meesal waar	Nie waar of onwaar nie	Meesal onwaar	Beslis onwaar

67. All things considered, are you satisfied with your job?
Is u, alles in ag genome, tevrede met u werk?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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68. I feel I am under constant pressure.
Ek voel ek is onder konstante druk.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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69. Generally speaking, do you like working here?
In die algemeen, hou u daarvan om hier te werk?

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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70. My opinion is asked as to how we can improve the profits of this company.
My opinie word gevra omtrent hoe as die profyt van die maatskappy kan verbeter.

Definitely yes Beslis ja	Mostly yes Meesal ja	Neither yes or no Nie ja or nee nie	Mostly not Meesal nie	Definitely not Beslis nie
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The Supervisory Support questionnaire

Name Shaft Discipline Level

B3 - C4	C5 - E3
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 Date

Naam Skag Departement (bv. Mynbou) Vlak Datum

DA = Definitely Agree A = Agree U = Uncertain D = Disagree DD = Definitely Disagree
 BS = Stem Beslis Saam S = Stem Saam O = Onseker N = Stem Nie Saam Nie BN = Stem Beslis Nie Saam Nie

Read each item and place a tick () in the appropriate box. Only one tick () per item. Answer all items.
 Lees asb. elke vraag en merk met 'n regmerkie () in die toepaslike blokkie. Slegs een regmerkie () per vraag.
 Antwoord asb. alle vrae.

	DA	A	U	D	DD
	BS	S	O	N	BN
1. Does your supervisor understand your <u>needs</u> when you feel you are not reaching your objectives? Verstaan u toesighouer u <u>behoefte</u> s wanneer u doelwitte nie bereik word nie?					
2. Can you really count on your supervisor to help you when you are faced with a crisis situation in your work? Kan u werklik op u toesighouer staatmaak wanneer u 'n krisissituasie in die werk beleef?					
3. Is your opinion taken into account when your superior reviews your work progress with you? Word u mening in ag geneem wanneer werksvordering deur u toesighouer bespreek word?					
4. Does your supervisor assist you in re-adjusting your objectives if they are no longer applicable? Verleen u toesighouer hulp wanneer doelwitte nie meer toepaslik is nie en dit hersien word?					
5. Does he help you overcome obstacles blocking the attainment of your objectives? Help u toesighouer u om struikelblokke, wat die bereiking van doelwitte verhinder, te oorbrug?					
6. Does he make sufficient time for you to discuss your work problems? Maak u toesighouer genoegsame tyd beskikbaar om u werksprobleme te bespreek?					
7. Can you count on your supervisor to listen to you when you need to discuss your objectives? Kan u op u toesighouer staatmaak om na u te luister wanneer doelwitte bespreek word?					
8. Does he give you the assistance you need regarding your objectives? Verleen u toesighouer die nodige hulp aan u aangaande u doelwitte?					
9. Does he ensure that high standards are maintained during the process of attaining your objectives? Verseker u toesighouer dat hoë standaarde gehandhaaf word in die nastrewing van u doelwitte?					

DA = Definitely Agree A = Agree U = Uncertain D = Disagree DD = Definitely Disagree
 BS = Stem Beslis Saam S = Stem Saam O = Onseker N = Stem Nie Saam Nie BN = Stem Beslis Nie Saam Nie

Read each item and place a tick () in the appropriate box. Only one tick () per item. Answer all items.
 Lees asb. elke vraag en merk met 'n regmerk () in die toepaslike blokkie. Slegs een regmerk () per vraag.
 Antwoord asb. alle vrae.

	DA	A	U	D	DD
	BS	S	O	N	BN
10. Does he appear approachable when you have problems or questions regarding your objectives? Blyk u toesighouer toeganklik te wees wanneer u probleme of vrae aangaande u doelwitte het?					
11. Does he express interest in your ideas regarding the attainment of your objectives? Toon u toesighouer belangstelling in u idees aangaande die bereiking van u doelwitte?					
12. Does he take your opinion into account in setting your objectives? Word u mening tydens doelwitstelling in ag geneem?					
13. Does he obtain the resources that you need if he cannot help you with a work problem? Verkry u toesighouer die hulp (bronne) as hy u nie met 'n probleem kan behulpsaam wees nie?					
14. Does your supervisor make his own <u>knowledge and skills</u> available to you when you are setting out your objectives? Is u toesighouer se <u>kennis en vaardighede</u> tot u beskikking tydens doelwitstelling?					
15. Does he provide you with adequate advice for the attainment of your objectives? Verskaf u toesighouer die nodige advies ter bereiking van u doelwitte?					
16. Does your supervisor demonstrate that he cares about you attaining your objectives? Toon u toesighouer dat hy omgee dat u doelwitte bereik word?					
17. Does your supervisor provide the guidance you need when you are having difficulty in working towards your objectives? Verskaf u toesighouer die nodige leiding as u probleme ondervind in die bereiking van u doelwitte?					
18. Does your supervisor give you sufficient information about the job you have to do? Verskaf u toesighouer genoegsame inligting aangaande die werk wat u moet verrig?					

DA = Definitely Agree

A = Agree

U = Uncertain

D = Disagree

DD = Definitely Disagree

BS = Stem Beslis Saam

S = Stem Saam

O = Onseker

N = Stem Nie Saam Nie

BN = Stem Beslis Nie Saam Nie

Read each item and place a tick () in the appropriate box. Only one tick () per item. Answer all items.

Lees asb. elke vraag en merk met 'n regmerkie () in die toepaslike blokkie. Slegs een regmerkie () per vraag.

Antwoord asb. alle vrae.

	DA	A	U	D	DD
	BS	S	O	N	BN
19. Does your supervisor give you regular feedback on your work progress? Verskaf u toesighouer gereelde terugvoer aangaande werksvordering?					
20. Does your supervisor assist you in scheduling and co-ordinating your work? Verleen u toesighouer hulp wanneer u werk geskeduleer en gekoördineer word?					
21. Does he keep you informed of the bigger picture relating to your work situation? Word u deurgaans ingelig aangaande die groter geheel van u werksituasie?					
22. Does he ensure that you have sufficient ability and knowledge to achieve your work goals? Verseker u toesighouer dat genoegsame vermoëns en kennis beskikbaar is om u doelwitte te bereik?					

The Team Work questionnaire

1. Not much is said about what we do wrong but we are often told what we do right.
Nie veel word gesê oor wat ons verkeerd doen nie maar ons word gereeld ingelig oor wat ons reg doen.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

2. There is good upward feedback to management.
Daar is goeie opwaartse terugvoer na Bestuur.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

3. Information about changes that are taking place on the mine are explained to employees.
Informasie oor veranderinge wat plaasvind op die myn word aan almal verduidelik.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

4. Employees are told about where the mine is going and what the plans for the future are.
Werknemers word ingelig oor die myn se toekoms en toekomsplanne.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

5. Employees are kept informed about changes which will effect the way they do their work.
Werknemers word ingelig oor veranderings wat hulle manier van werk affekteer.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

6. Employees get feedback from the management/consultative committee/ shaft liaison meetings.
Werknemers kry terugvoer van bestuur/Werknemers Kommittee/Skag vergaderings.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

7. Team members are motivated because they are praised for good work.
Spanlede is gemotiveerd omdat hulle geprys word vir werk wat goed gedoen is.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

8. Employees receive up-to-date information about the mine's production results.
Werknemers ontvang gereeld inligting in verband met die myn se produksie resultate.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

9. Feedback systems are such that employees get answers to questions about important issues which affect them.
Terugvoer sisteme is van so 'n standaard dat mense antwoorde kry op vrae oor belangrike dinge wat hulle affekteer.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

10. Employees from different departments help each other to keep costs down.
Werknemers van verskillende departemente help mekaar om koste laag te hou.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

11. Information about production costs and profit goals of my section have been clearly explained to me.
Informasie in verband met produksie koste en profyt doelwitte in my seksie was aan my verduidelik.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

12. Different departments can rely on each other for co-operation and support.
Verskillende departemente kan op mekaar staatmaak vir samewerking en ondersteuning.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

13. I am involved in team discussions to sort out problems which affect the results of my section.

Ek is betrokke by span besprekings om probleme op te los wat die resultate in my seksie affekteer.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

14. I do receive correct information and explanations about changes which could affect my conditions of service, such as bonus and pay.

Ek ontvang inligting of verduidelikings aangaande veranderings wat my diensvoorwaardes raak soos byvoorbeeld, salaris en bonus.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

15. There has been an improvement in co-operation between employees over the past year.

Daar was 'n verbetering in samewerking tussen werknemers gedurende die afgelope jaar.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

16. In our work group we can rely on each other for help.

In ons werkgroep kan ons op mekaar staatmaak vir hulp.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

17. There are positive feelings amongst team members which makes them want to work together.

Daar is 'n positiewe gevoel tussen spanlede wat veroorsaak dat hulle graag wil saamwerk.

5	4	3	2	1
Definitely True	Mostly True	<u>Neither True Nor False</u> Do Not Know	Mostly False	Definitely False
Beslis Waar	Meesal Waar	<u>Nie Waar of Onwaar Nie</u> Weet Nie	Meesal Onwaar	Beslis Onwaar

If true, please give examples :

Indien waar gee asseblief voorbeelde :

18. What is your work station?

Tavistock	1
Phoenix	2
Arthur Taylor	3
ATCOM	4
South Witbank	5
Central Offices	6

19. What is your job level?

B4 - C3

1

C4 - E5

2

20. What is your discipline?

Engineering

1

Metallurgy

2

Mining

3

Central Services

4

The Self-Appraisal questionnaire

Name
Naam

Shift
Skag

Workshop No.
Werkswinkel No.

Job Level	B3-C4	
Posvlak	C5-E3	

Date
Datum

Use the following scale and note your own on-the-job performance on each of the items given below.

Gebruik die volgende skaal en evaluteer u eie werksprestandie op elk van die gegewe items.

SCALE/SKAAL	
1 =	Very low/Very poor Baie laag/Baie swak
2 =	Low/Poor Laag/Swak
3 =	Below average Ondergemiddeld
4 =	Low average Laaggemiddeld
5 =	Average (Always working according to standards) Gemiddeld (Werk altyd volgens standaarde)
6 =	High average Hooggemiddeld
7 =	Above average Booggemiddeld
8 =	High/good Hoog/goed
9 =	Very high/Very good Baie hoog/Baie goed

1. SAFETY/VEILIGHEID

- 1.1 Utilisation of safety equipment
Benutting van veiligheidsuitrusting
- 1.2 Injury rate
Beserings tempo
- 1.3 Conducting safety meetings (regularity)
Hou van veiligheidsvergaderings (geneeldtheid)

Rating
Skatting

	<u>Rating</u> <u>Skatting</u>	
2. PRODUCTION/PRODUKSIE		
2.1 Quality of work Kwaliteit van werk	<input type="text"/>	<input type="text"/>
2.2 Work Tempo (Quantity of work) Werkstempo (Hoeveelheid werk)	<input type="text"/>	<input type="text"/>
3. PLANNING/BEPLANNING		
3.1 Scheduling of work Schedulering van werk	<input type="text"/>	<input type="text"/>
3.2 Prioritising of tasks Prioritiserings van take	<input type="text"/>	<input type="text"/>
4. ORGANISATION/ORGANISERING		
4.1 Utilisation of labour Berutting van arbeid	<input type="text"/>	<input type="text"/>
4.2 Utilisation of material Berutting van materiaal	<input type="text"/>	<input type="text"/>
5. CONTRACTING/KONTRAKTIERING		
5.1 Checking/Inspection Inspeksie	<input type="text"/>	<input type="text"/>
5.2 Feedback given to subordinates Terugvoer aan ondererigeskikles	<input type="text"/>	<input type="text"/>
6. STANDARDS/STANDAARDE		
6.1 Knowledge of standards Kennis van standaarde	<input type="text"/>	<input type="text"/>
6.2 Application of standards Toepassing van standaarde	<input type="text"/>	<input type="text"/>
7. TECHNICAL COMPETENCE/TEGNIIESE VAARDIGHED		
7.1 Job knowledge Werkskennis	<input type="text"/>	<input type="text"/>
7.2 Skills to do the job Vaardigheid om werk te doen	<input type="text"/>	<input type="text"/>
7.3 Ability to do the job Vermoë om werk te doen	<input type="text"/>	<input type="text"/>
8. COST EFFECTIVENESS/KOSIE EFFEKTIVITEIT		
8.1 Budgeting effectiveness Begrotingseffektiviteit	<input type="text"/>	<input type="text"/>
8.2 Costing effectiveness Beheer effektiviteit	<input type="text"/>	<input type="text"/>

9. INTERPERSONAL SKILLS/INTERPERSOONLIKE VERHOUDINGE

- 9.1 Co-operation with others
Sameserking met ander
- 9.2 Communication
Kommunikasie
- 9.3 Conflict Handling
Konflik handering

10. WORK MOTIVATION/WERKSMOTIVERING

- 10.1 Willingness to do extra work
Gewilligheid om ekstra werk te verrig
- 10.2 Positive work attitude
Positieve werkshouding
- 10.3 Rewarding subordinates (recognition)
Beloning van ondergeskektes (erkenning)

Rating
Skatting

Average stanine

Average stafive
(Transformed)